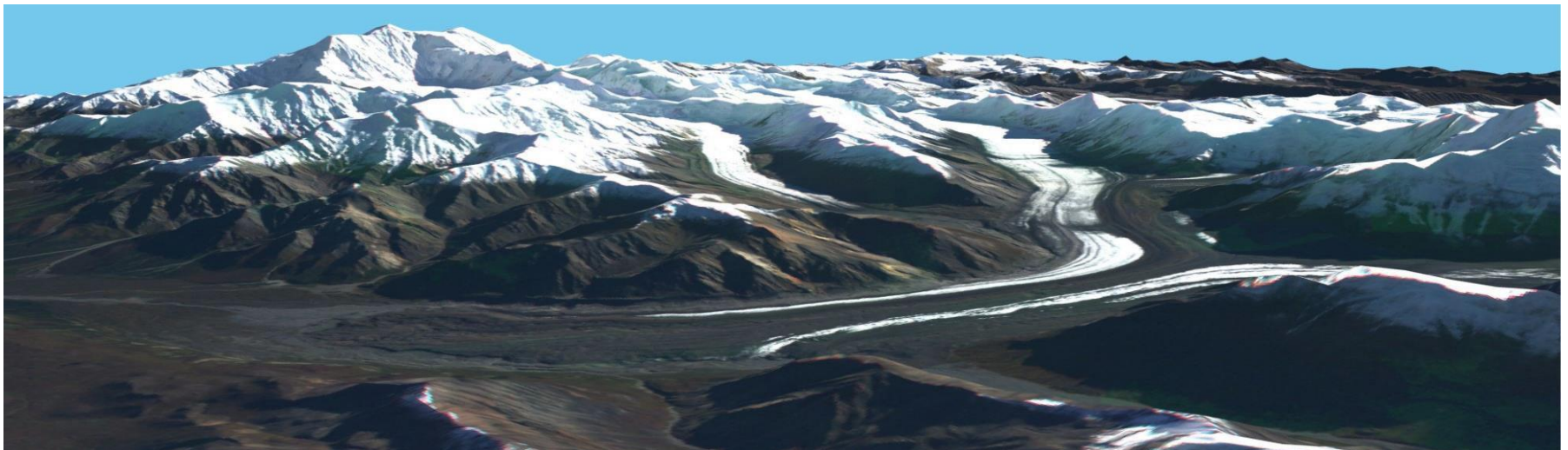


+ Meet and Greet

1

- 8:00-8:30 am
- Networking opportunity
- Meet Tom Iseman, DOI Deputy Assistant Secretary for Water and Science





Alaska Mapping Executive Committee Strategy Meeting II, Anchorage, Alaska

June 21 2016

+ Agenda

- Introductions, Opening Remarks – *Tbm Iseman, DOI*
- AMEC Objectives, Alaska Mapping Status – *Kevin Gallagher, USGS*
- USGS Alaska Region Science Activities – *Marti Miller, Paul Flint, Chris Zimmerman, USGS*
- Alaska Federal Executive Coordination – *Aimee Devaris, USGS*
- Alaska Geospatial Council Report – *Ed Fogels, Anne Johnson, AK DNR*
- Alaska Ifsar Status – *Mike Tischler, USGS*
- *BREAK*
- Alaska Hydrography Status – *Kacy Krieger, UAA*
- Aleutian Elevation Alternative, WorldDEM Evaluation – *Dewberry, Inc*
- NOAA Geospatial Framework, GRAVD and Shoreline Mapping – *Juliana Blackwell, NOAA*
- Transportation Status – *Brian Wright, USGS*
- Communication Planning – *Kevin Gallagher, USGS*
- Open Dialog Strategy Session – *Tbm Iseman, DOI*
- Actions, Next Meeting – *Tbm Iseman, DOI* Adjourn

+ Alaska Mapping Executive Committee - History

- Alaska Mapping Roundtable convened June, 2012 to review the need to improve the state of mapping in Alaska, primarily focused on the need to complete statewide 5-meter elevation acquisition
- The Alaska Mapping Executive Committee (AMEC) was formed as an outcome of the Roundtable
- AMEC held its first meeting in November, 2012



+ Alaska Mapping Executive Committee - Charter

- Charter was approved by AMEC vote in November, 2012
- Purpose of Committee: To oversee, prioritize and accelerate the federal role in mapping Alaska
- Committee Guiding Principles:
 - Use enterprise approach to enable greatest efficiencies
 - Work in partnership with the State of Alaska to commit and coordinate funding
 - Leverage existing efforts, resources, and relationships
 - Implement FGDC best practices and enable data access through the Geospatial Portal

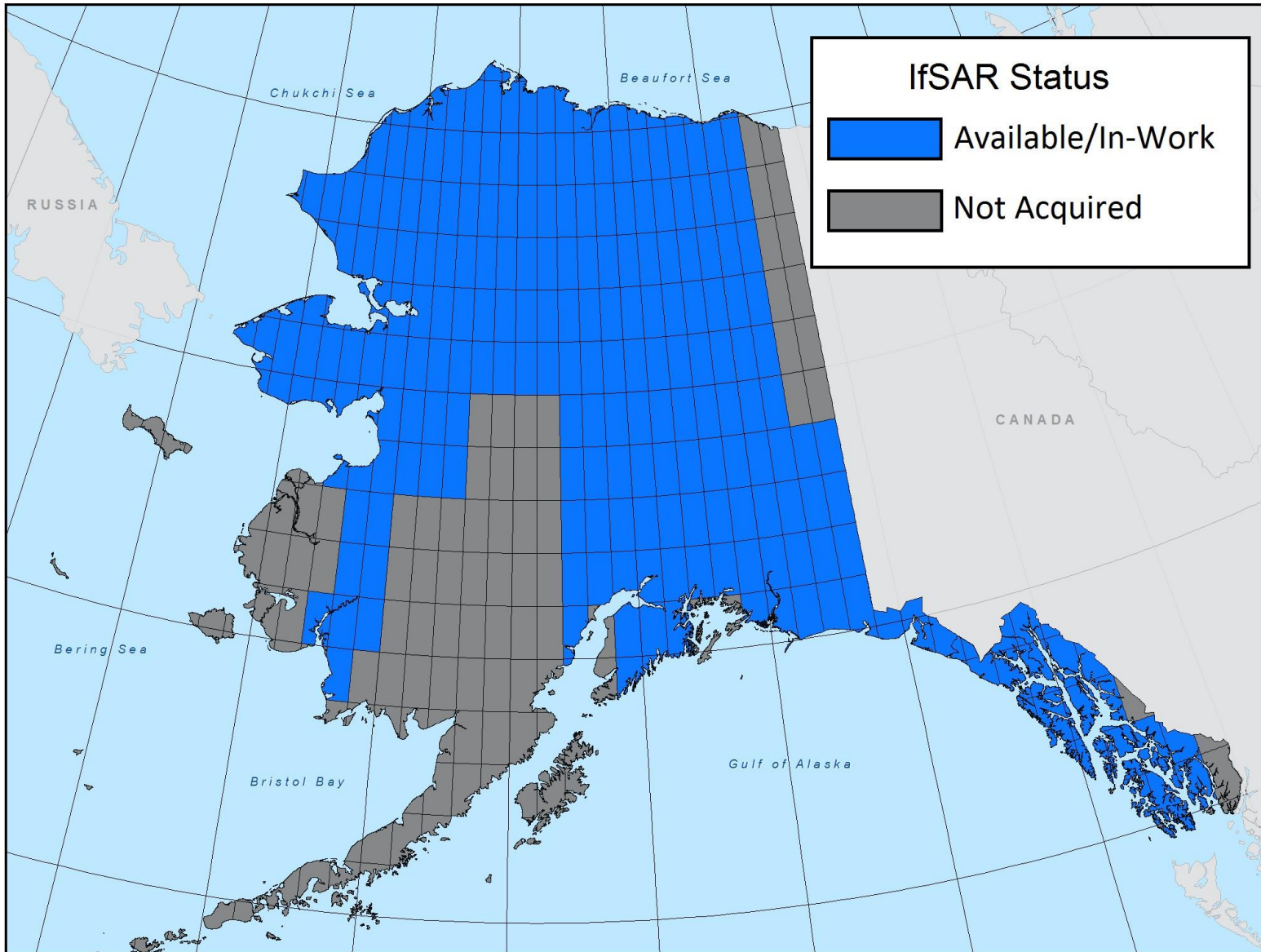
+ Data Acquisition Accomplishments

Theme	Metric	Spring 2016 Status
Elevation (Ifsar)	% IFSAR acquired	69% complete or in work (7% increase from Feb)
Hydrography	% NHD updated	15% complete (4% increase from Feb)
Transportation	% of State complete and publicly available	Baseline road coverage 100% complete and delivered to the public by AK DOT; enhancements ongoing
GRAV-D	% GRAV-D acquired	55% complete (5% increase from Feb)
Coastal Mapping	% AK shoreline updated	43% complete

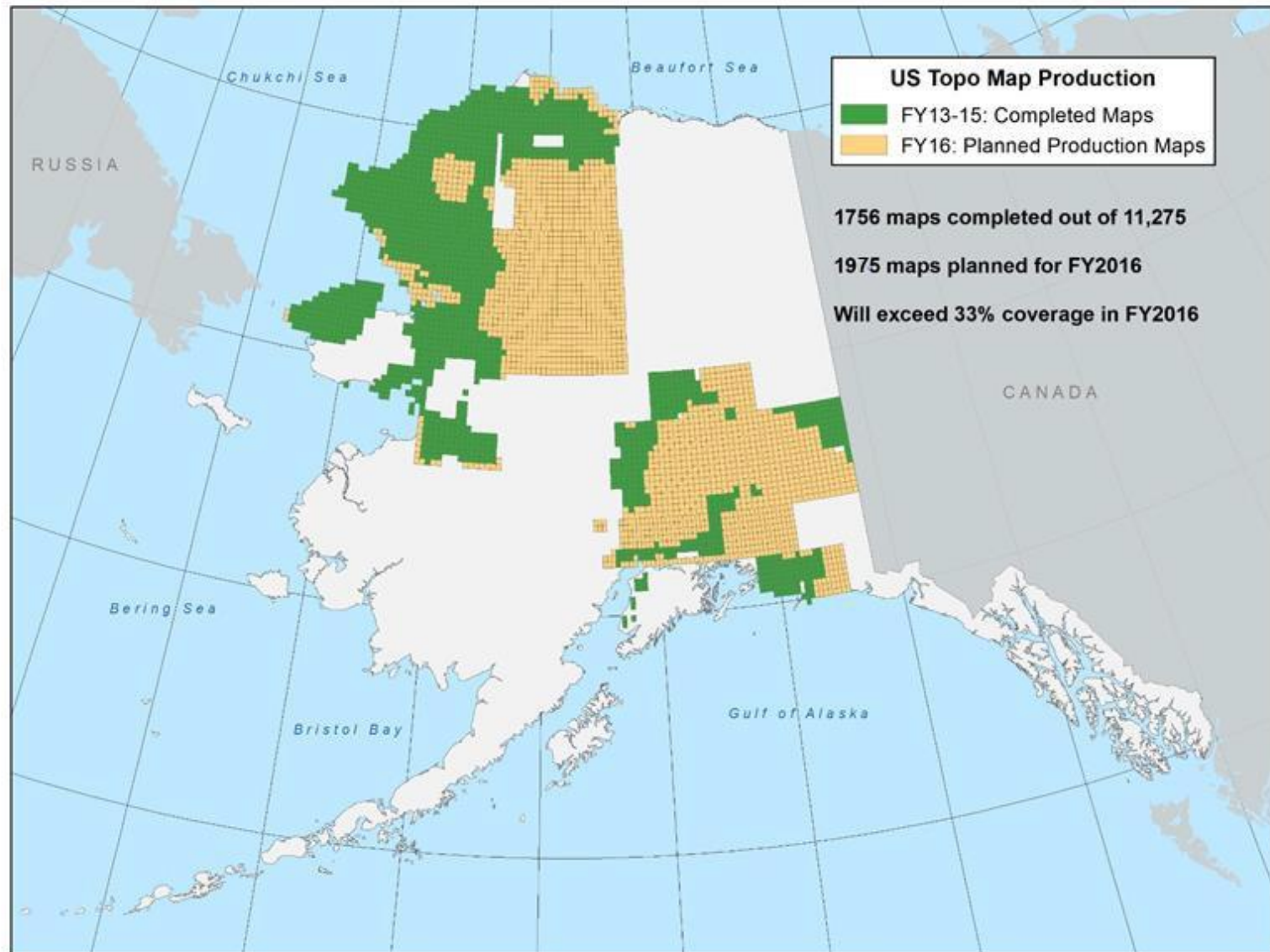


Alaska Ifsar Status

Alaska IfSAR Elevation Status - 69% Available or In-Work



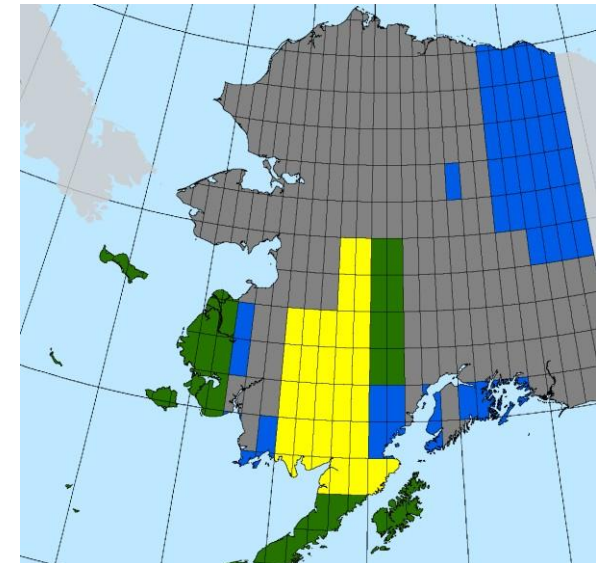
+ Alaska US TOPO Map Status



+ 18-Month Tactical Plan Objectives

■ Accelerate Ifsar Acquisition

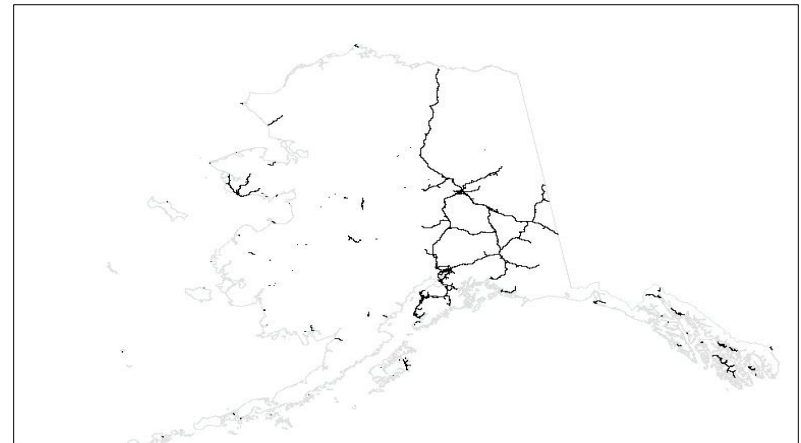
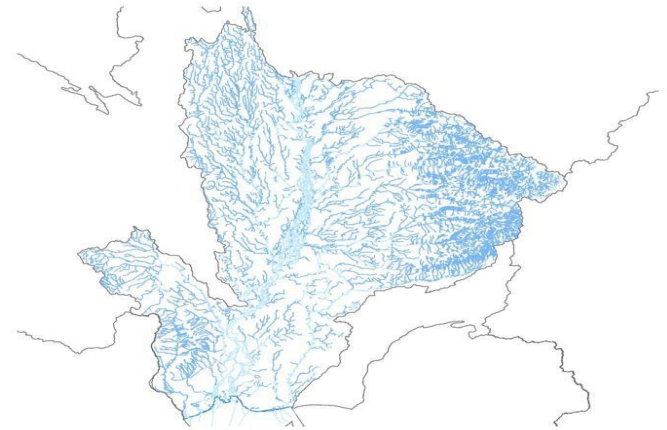
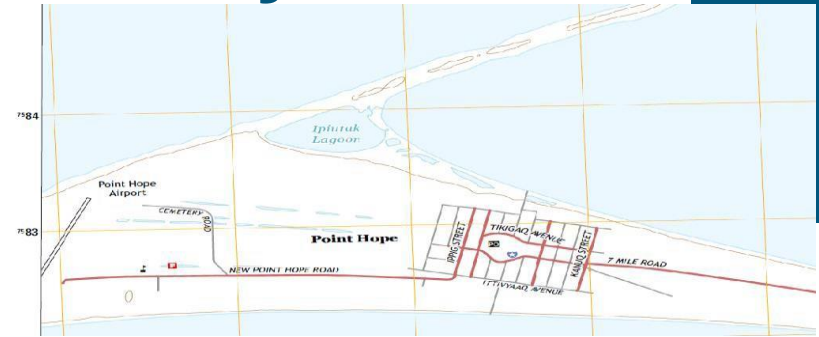
- Complete IfSAR acquisition over NE Alaska in FY16
- Surpass 70% IfSAR coverage in FY2016
- Update 3-Year Ifsar Acquisition Plan and Budget Cross Cut document (complete)



+ 18-Month Tactical Plan Objectives

10

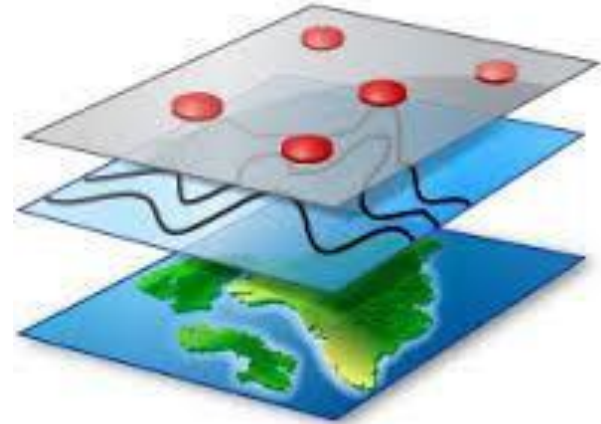
- **Accelerate Base Mapping**
 - Increase US Topo map production to 1900+ quads per year
- Support hydrography and shoreline data improvements
- Continue enhancement of statewide Alaska DOT roads dataset



+ 18-Month Tactical Plan Objectives

11

- State of Alaska organize priority thematic AGC Technical Working Groups



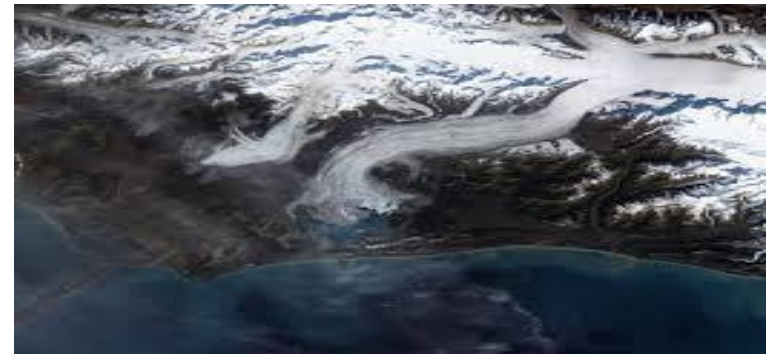
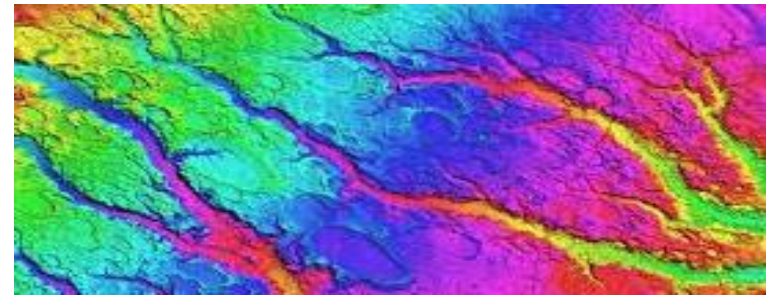
Implement an appropriate coordination mechanism between Alaska Federal Executives and AMEC



+ 18-Month Tactical Plan Objectives

12

- Evaluate and report options for Aleutian elevation coverage
- Establish a State lidar priority plan
- Evaluate and report options for next-generation Alaska statewide imagery coverage



+ 18-Month Tactical Plan Objectives

- Continue efforts to expand and modernize the Geospatial Framework for Alaska
- Prepare communication materials for future Alaska Mapping outreach activities



+ USGS Alaska Region Science

Science use of mapping products

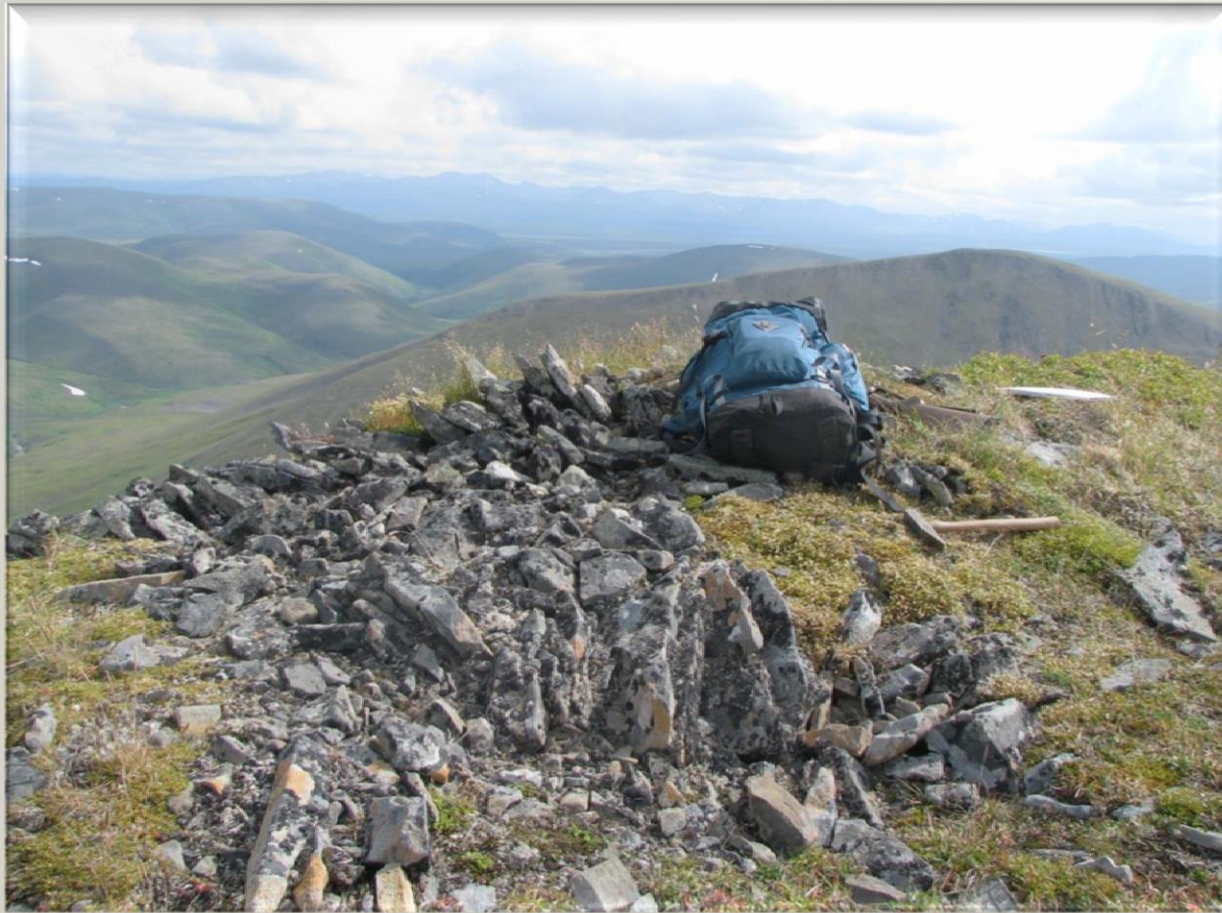
- 1) **Geologic Assessments and GIS informing BLM Planning Activities in Alaska; First Complete Digital Geologic Map of Alaska** – Marti Miller
- 2) **Changing Arctic Ecosystems Project: Coastal Erosion and Inundation and Changes in Geese Habitat** – Paul Flint
- 3) **High resolution elevation map products help scientists identify how climate change will change lake connectivity, water chemistry, and fish habitat in north slope aquatic ecosystems** – Chris Zimmerman



A geospatial method for estimating mineral potential across Alaska

**Strategic and Critical Minerals Cooperative
Project**

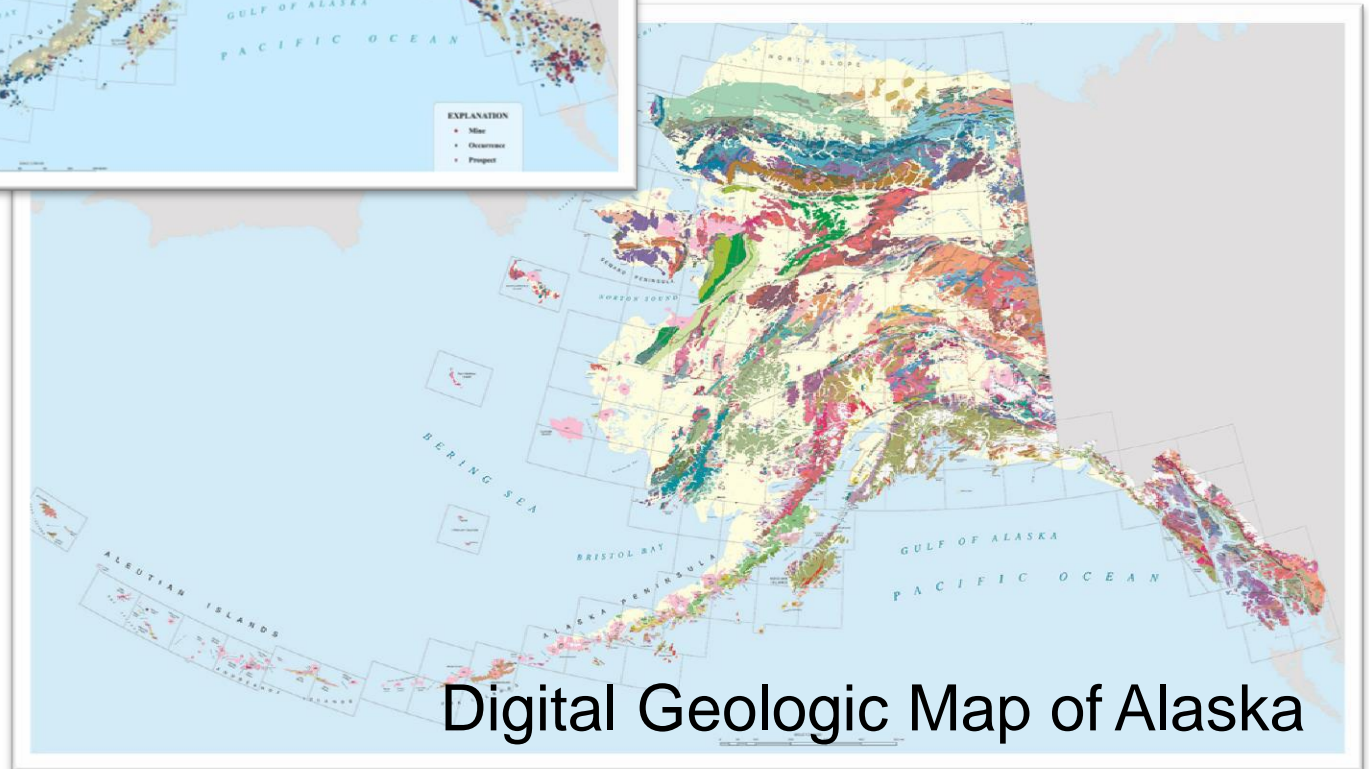
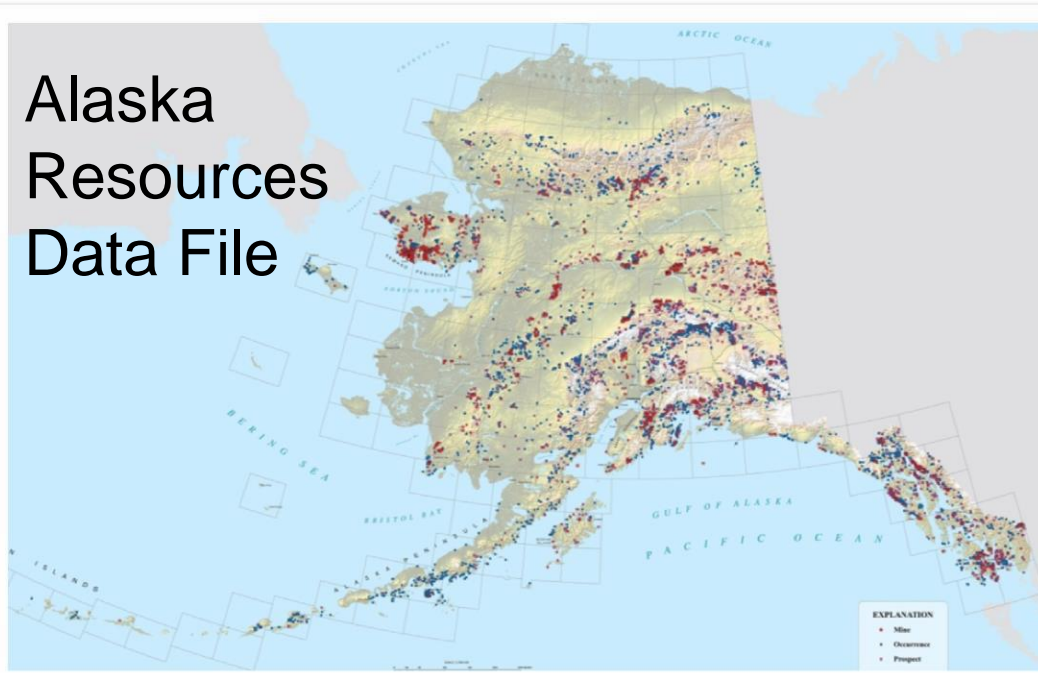




Alaska is still a geologic frontier....

It is the only state in which world-class deposits are still being discovered at the surface and its subsurface endowment is virtually unexplored.

Alaska Resources Data File

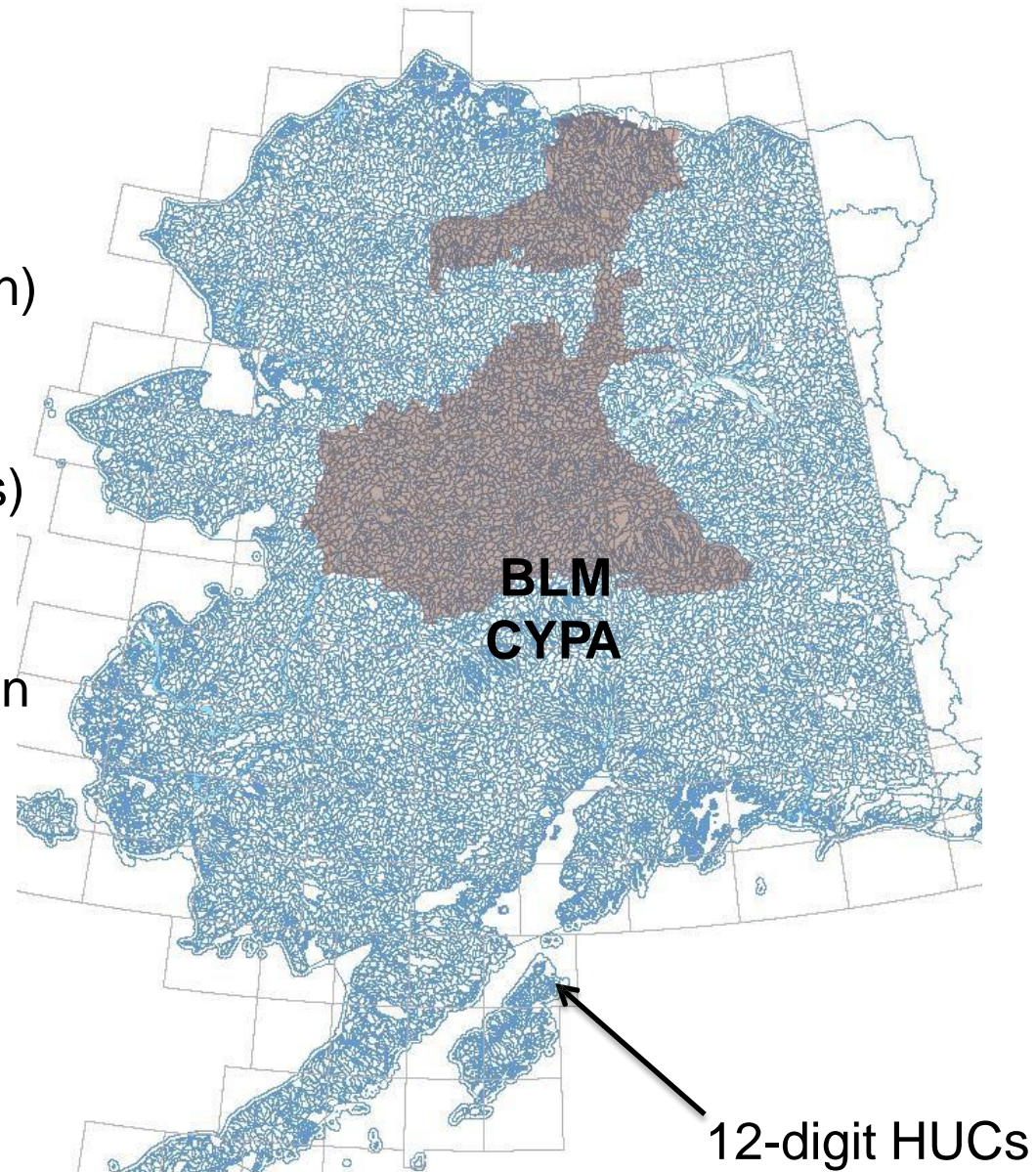


Key Datasets

- **Alaska Resource Data File (ARDF)**
 - summary of all known prospects and occurrences
- **State Geologic Map database**
 - generalized lithology layers
- **Alaska Geochemical Database**
 - Stream sediment, soil, and rock geochemistry
- **Regional geophysical data**
 - aeroradiometric data for REE model
- **National Hydrologic Dataset (NHD)**
 - 12-digit HUCs as base analysis unit; river/stream networks

Methodology

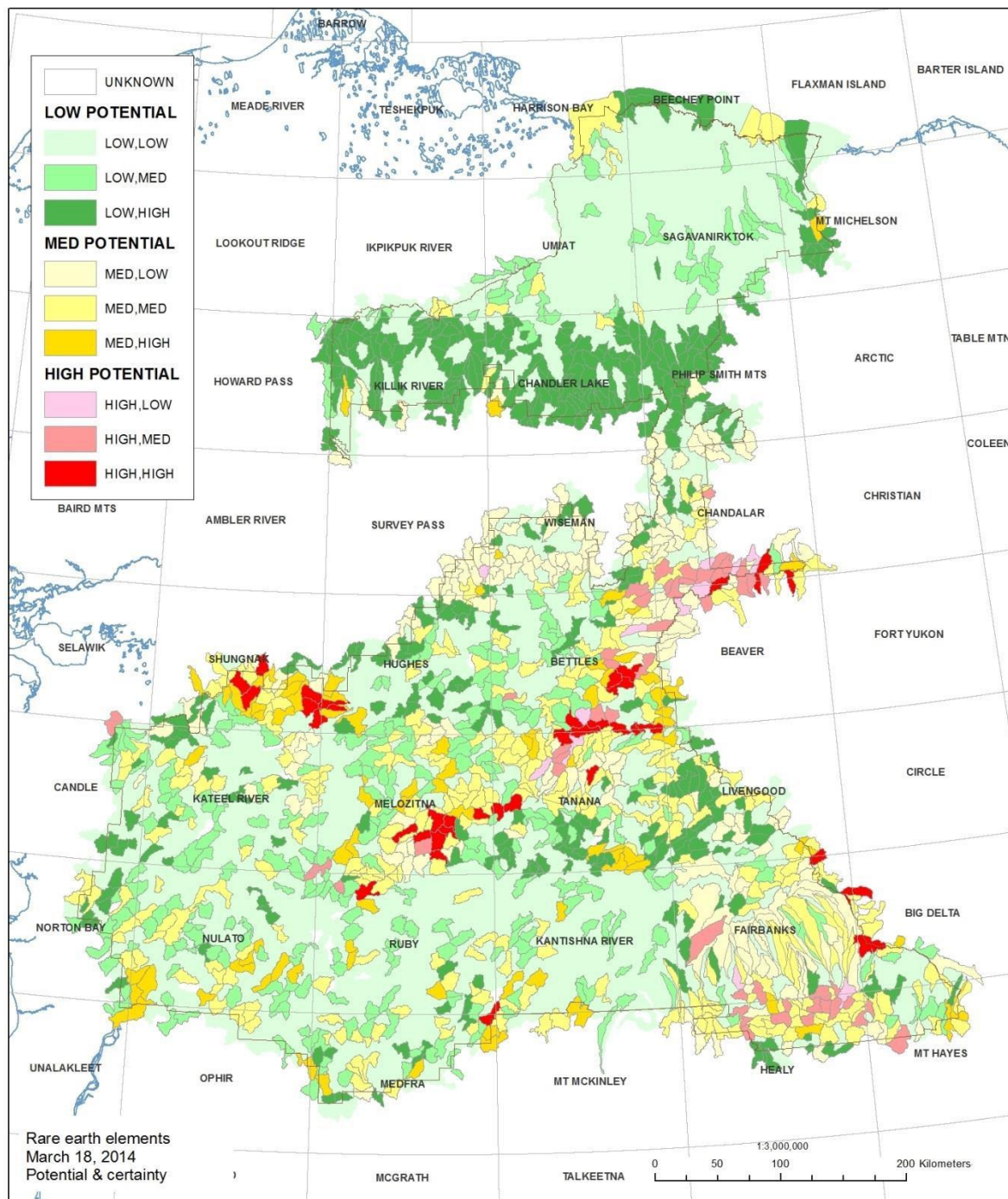
- Initial focus on BLM Central Yukon Planning Area (brown) to inform Resource Management Plan
- Use sub-watersheds (HUCs) as primary analysis unit – 111 km² on average
- Assign each HUC a score on basis of model-specific criteria
- Determine cutoffs for estimated mineral potential and add some measure of certainty



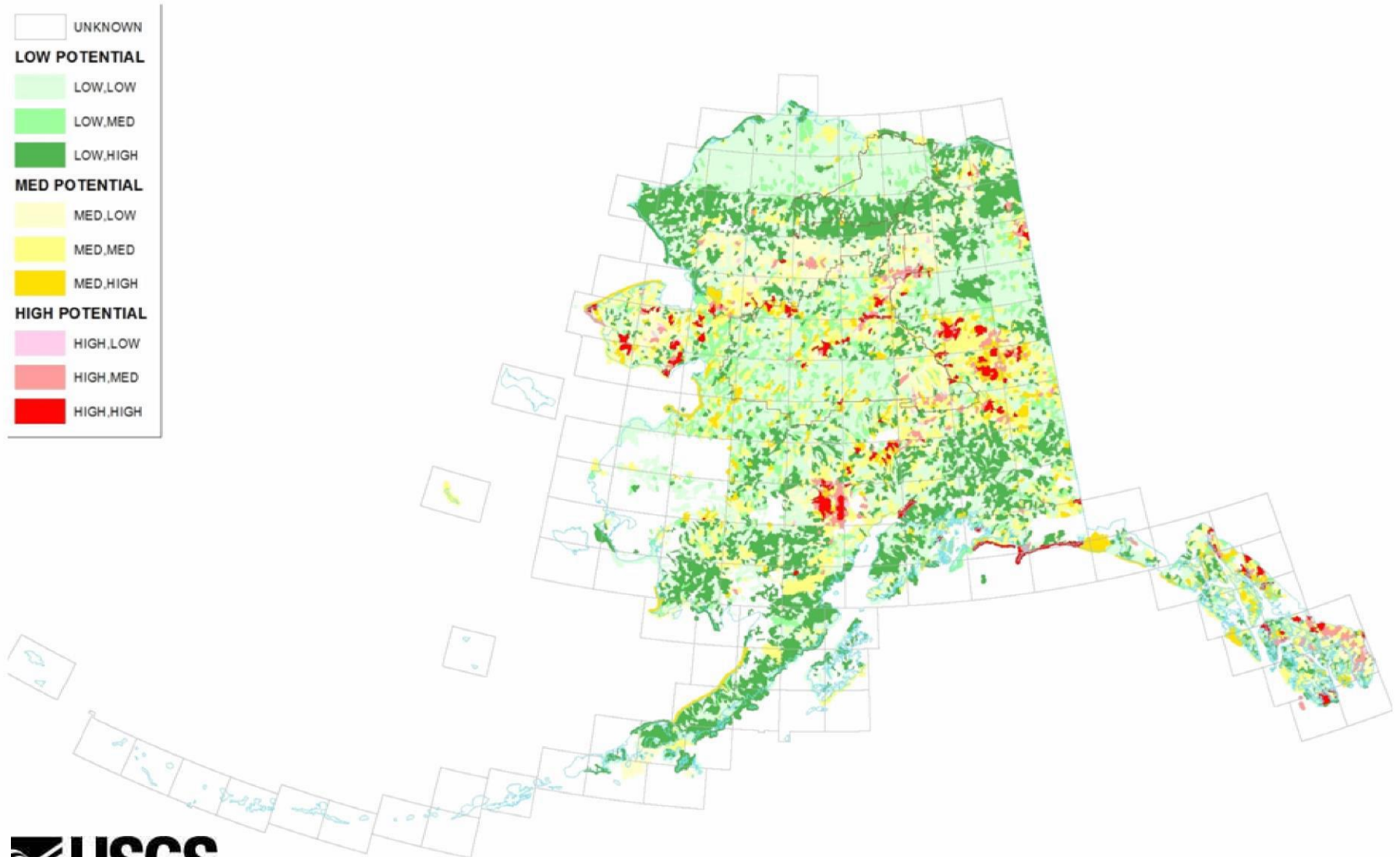
Preliminary Results REEs

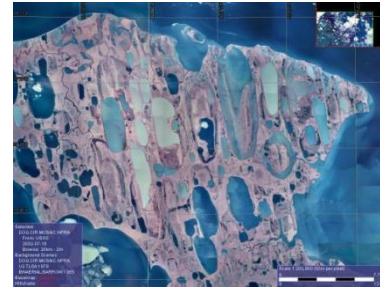
Key scoring elements:

- ARDF REE record
- Igneous rock geochem – ratios and indices
- Stream-sediment geochemistry
- Aeroradiometric Th/K values
- Added in the uncertainty factor



The next step is statewide estimated mineral potential





USGS Projects-Mapping and monitoring coastal processes in the NPRA

Paul Flint and Kyle Hogrefe

US Geological Survey, Alaska Science Center

U.S. Department of the Interior
U.S. Geological Survey

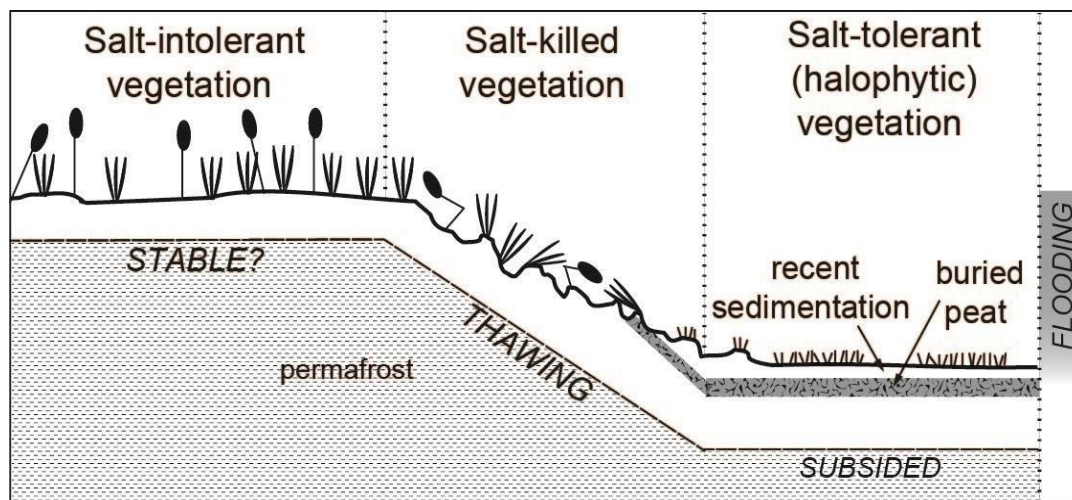




Climate Change in Action



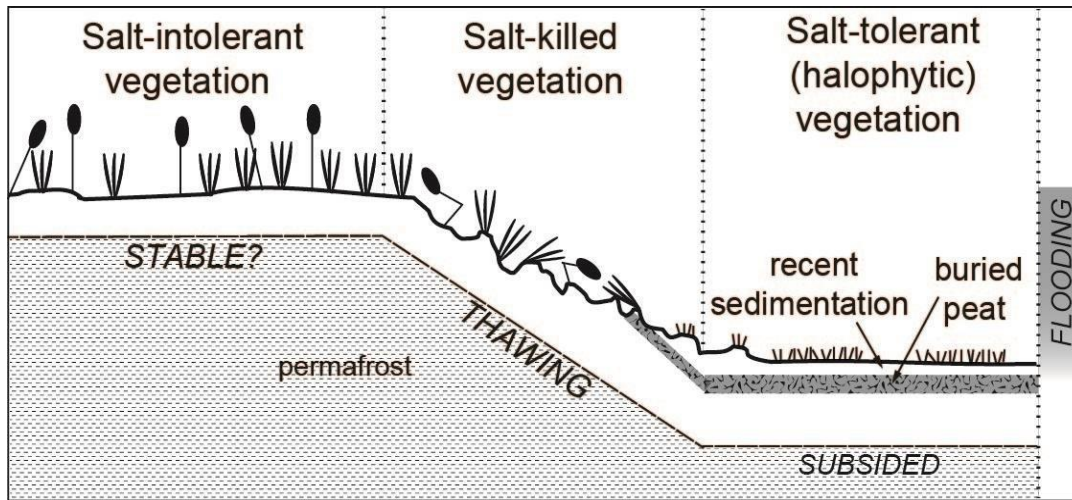
Changes in coastal erosion and habitat





The key factor is that large areas along the coast are underlain with very high ice content permafrost.

Massive ice

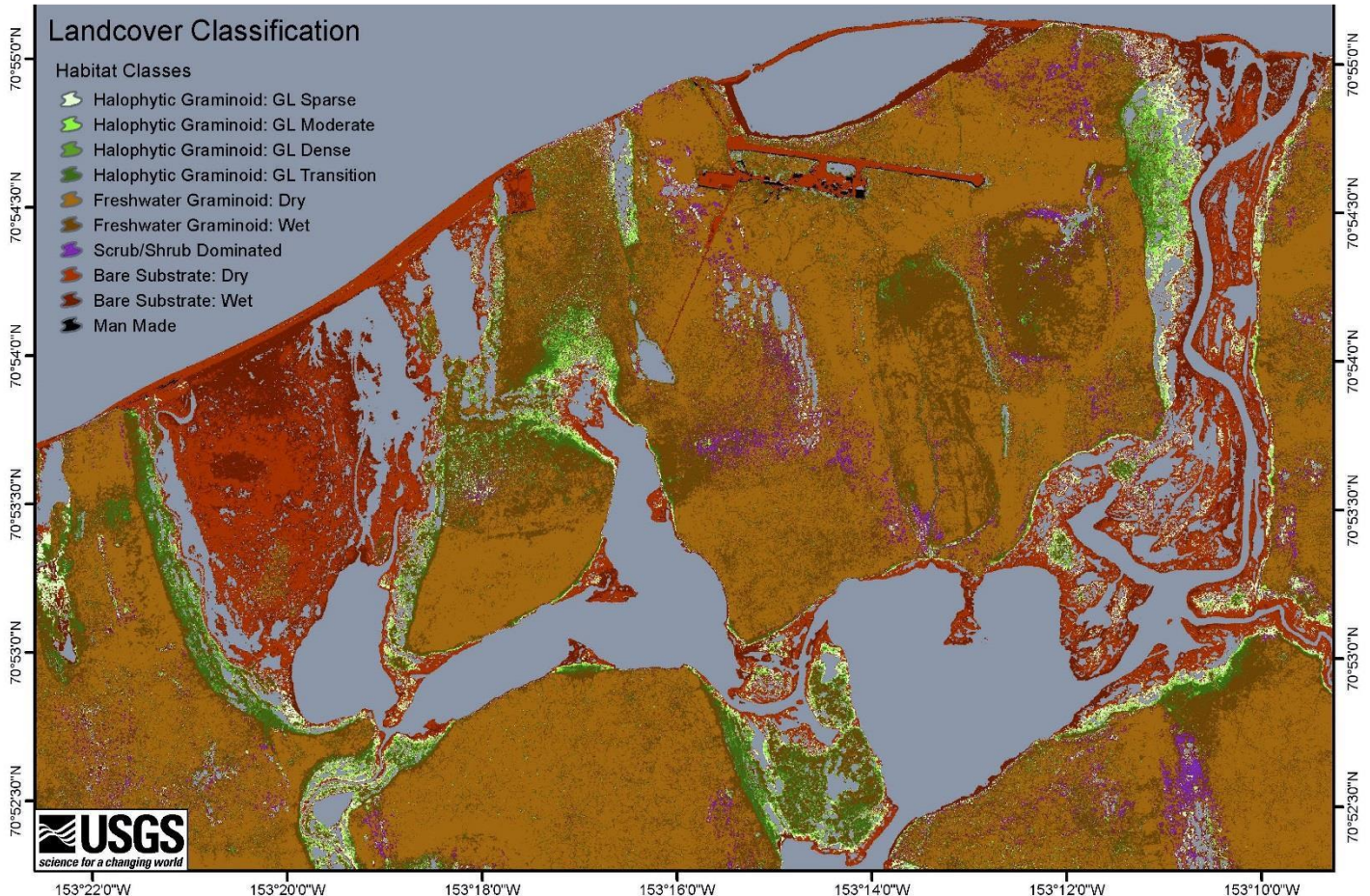


While LIDAR data have been collected, there is no DEM for this area.



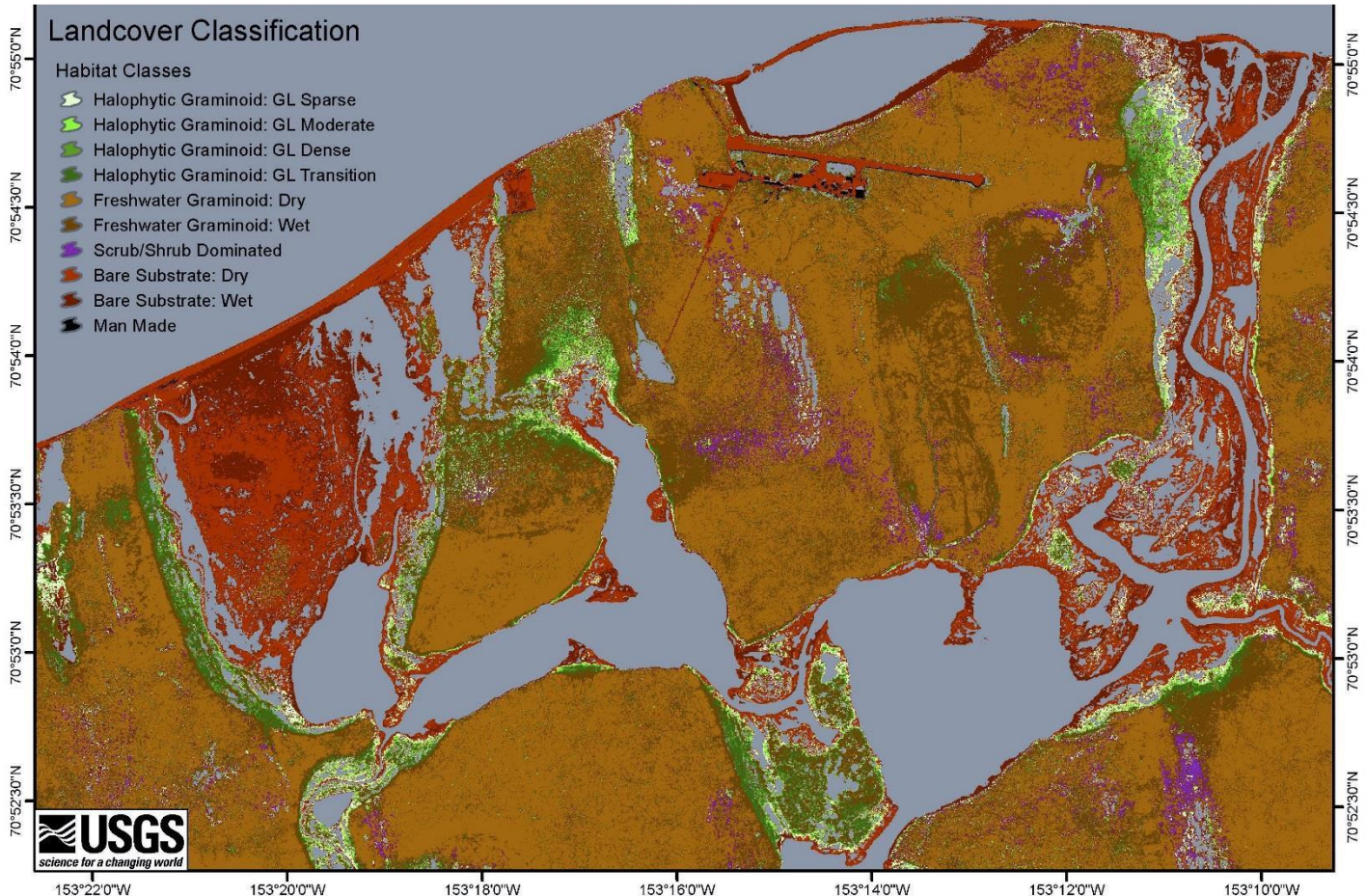
Even if there was a DEM, we suspect the true elevations are changing rapidly, due to subsidence.

How much of this habitat currently exists?

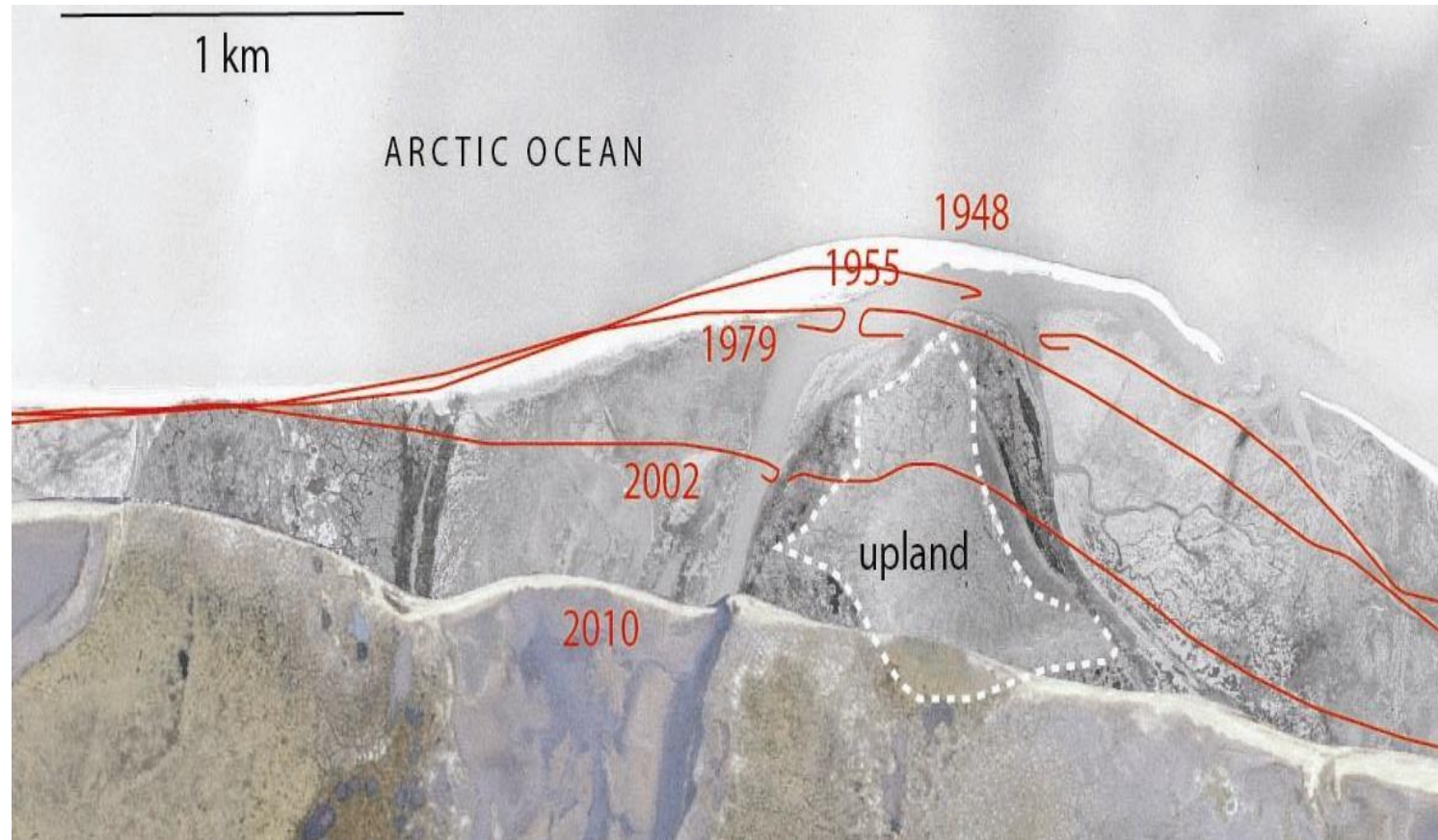


At what rate is new habitat being created by permafrost thaw and subsidence?

Is this rate increasing with climate warming?

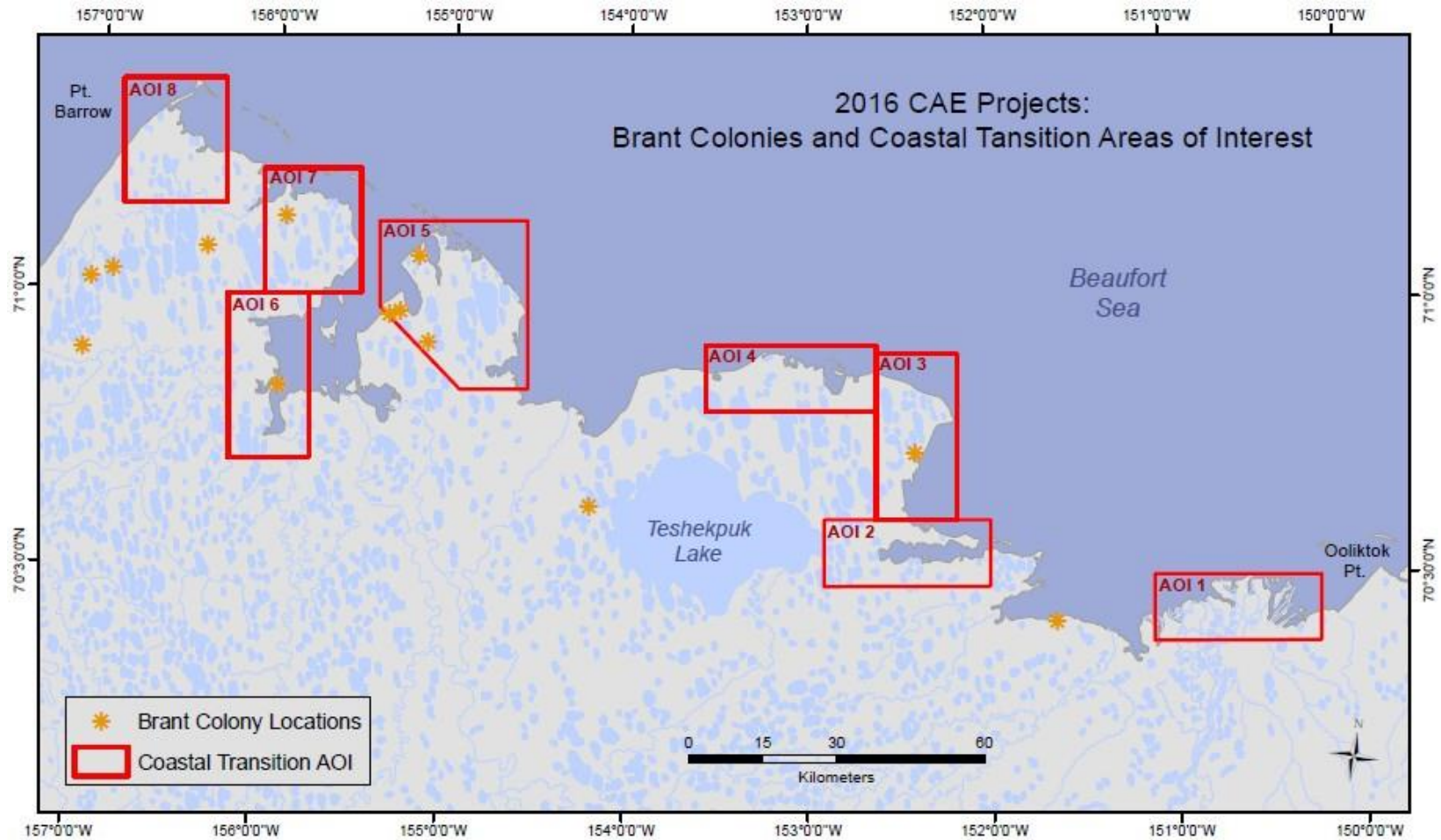


At what rate is habitat being lost to coastal erosion?



The rate of coastal erosion has increased in recent years

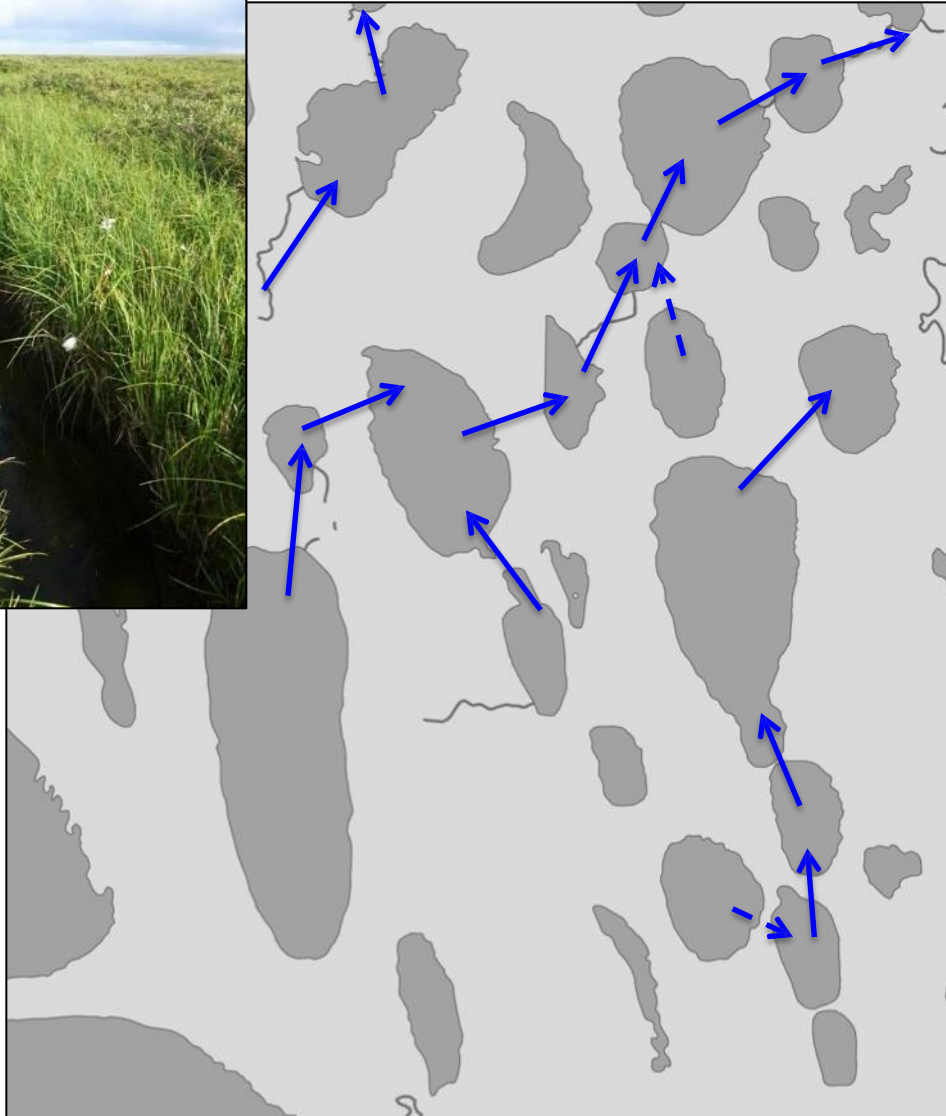
How do all these factors vary at the landscape (NPR-A) scale?





Hydrologic Connectivity and Freshwater Ecology

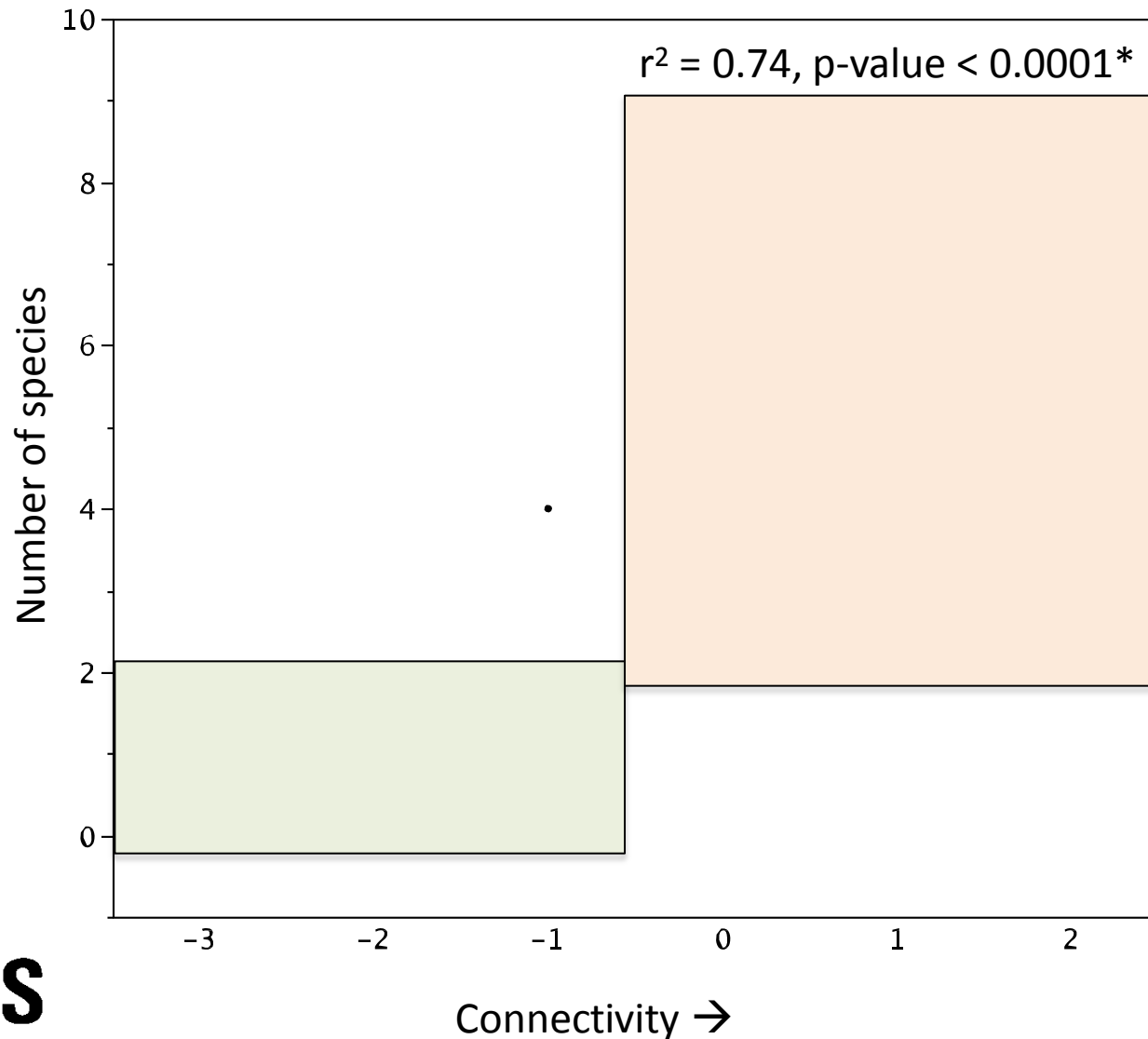
Surface water connectivity



Lake Order

- 3, disconnected
- 2, wetland
- 1, ephemeral flow
- 0, headwater lake
- 1, inflow & outflow
- 2, 3+ channels

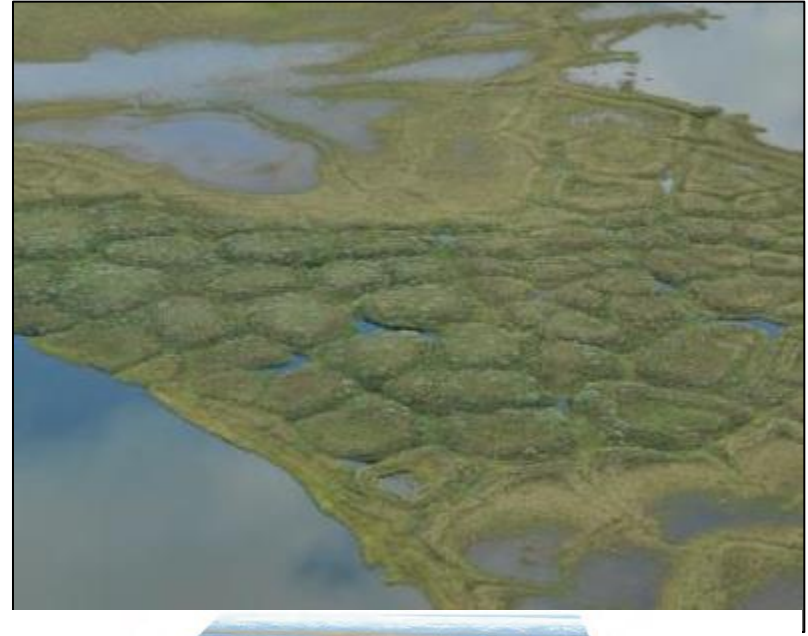
Number of species increased with surface water connectivity



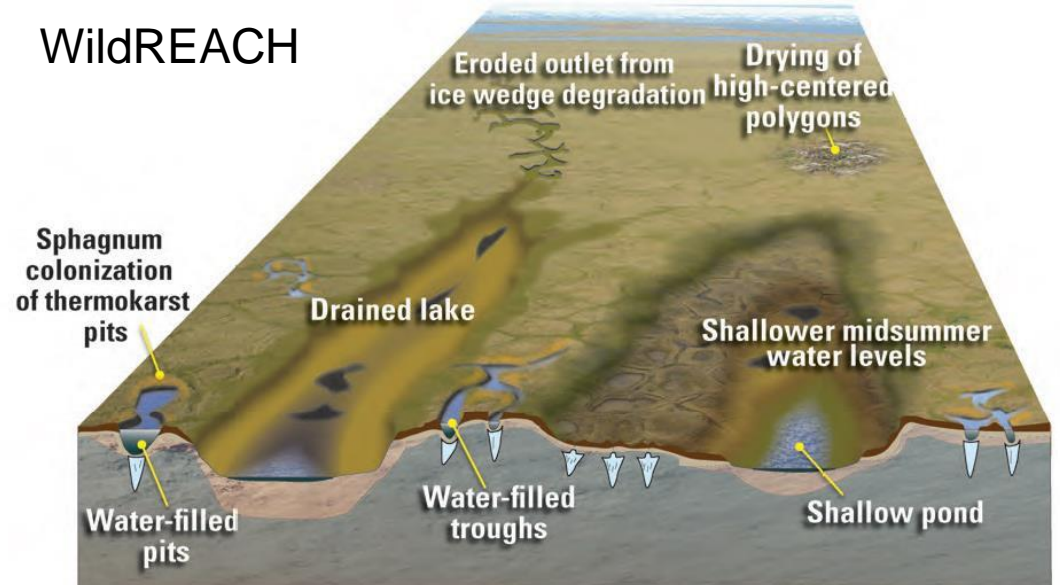
Climate Change

Change in cryospheric components

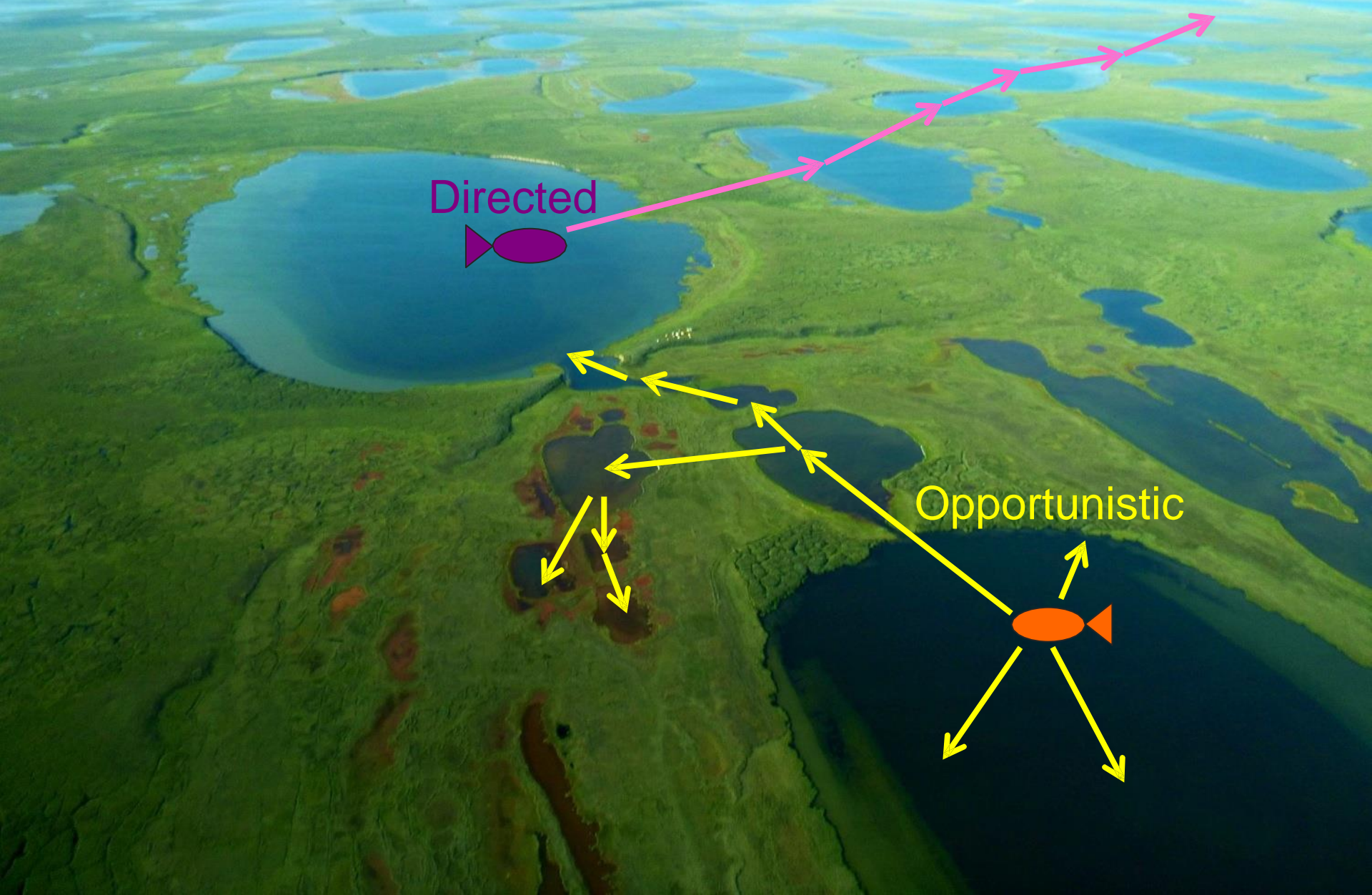
- Permafrost thaw
- Timing & intensity of the freshet
- Longer ice free season
- Greater evaporation



WildREACH

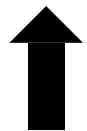


Connectivity influences species occupancy

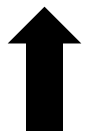


Connectivity Matters!

Connected



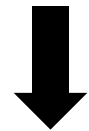
Richness



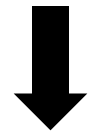
Species

Colonization

Disconnected



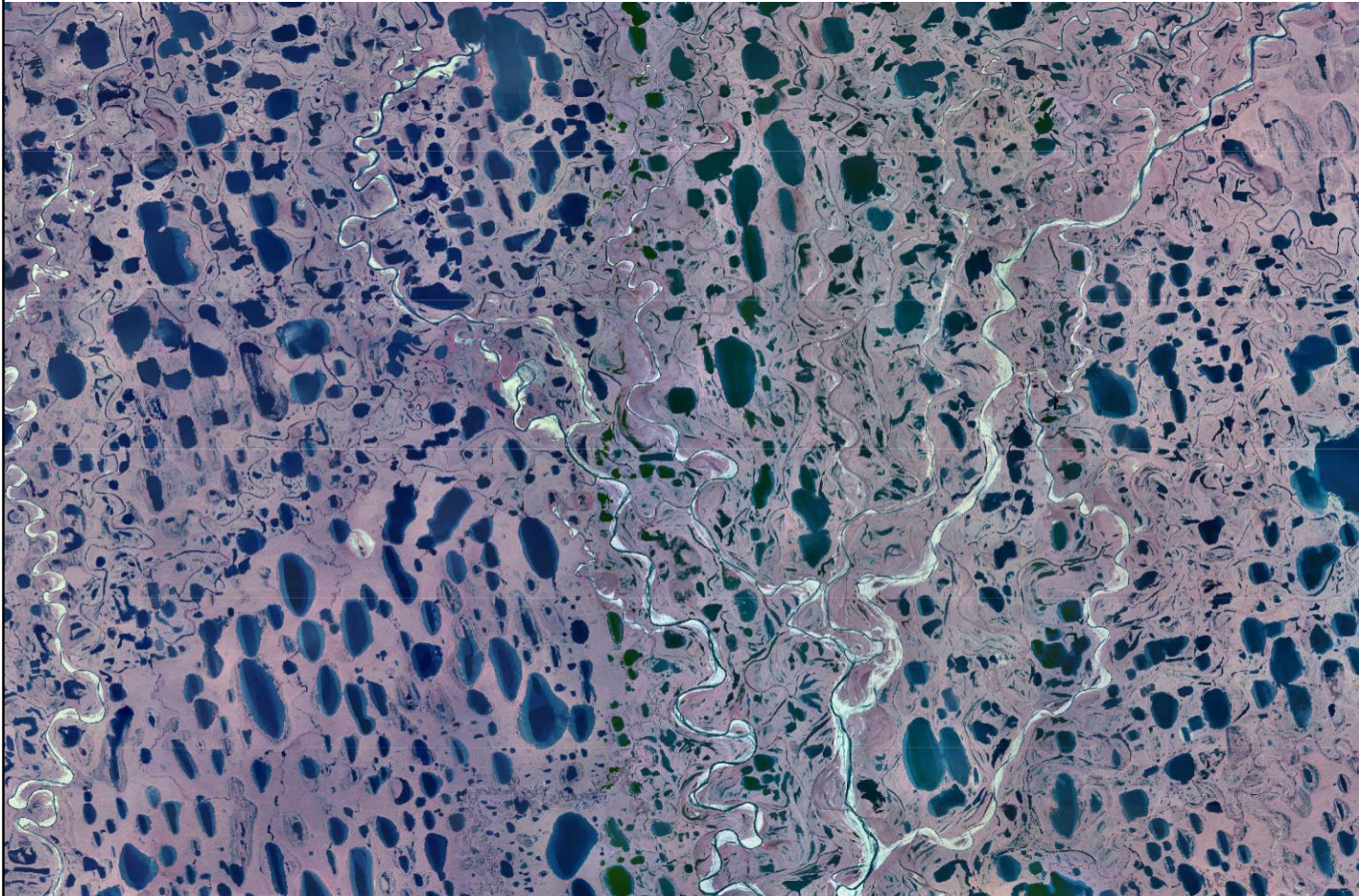
Richness

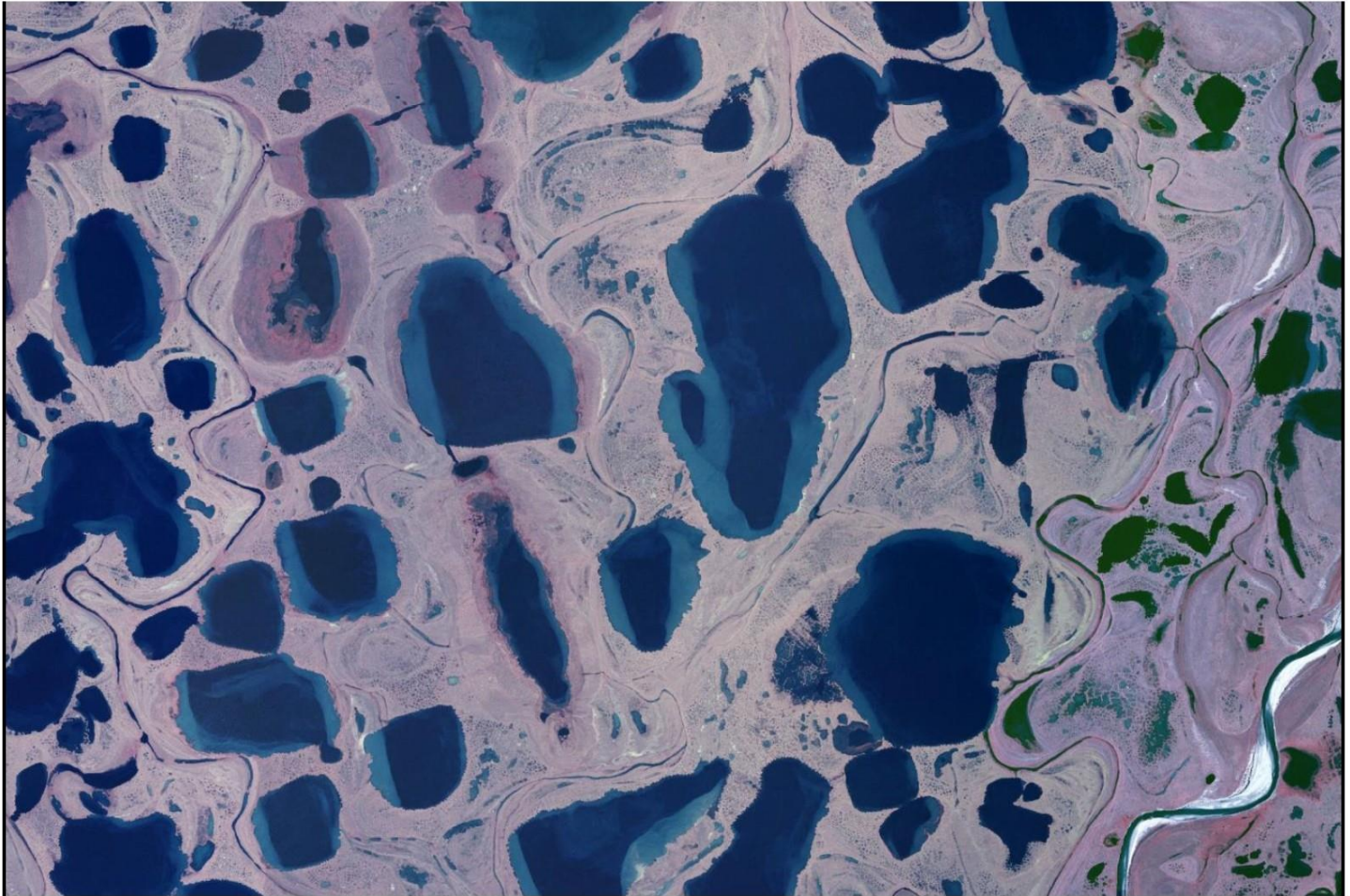


Species

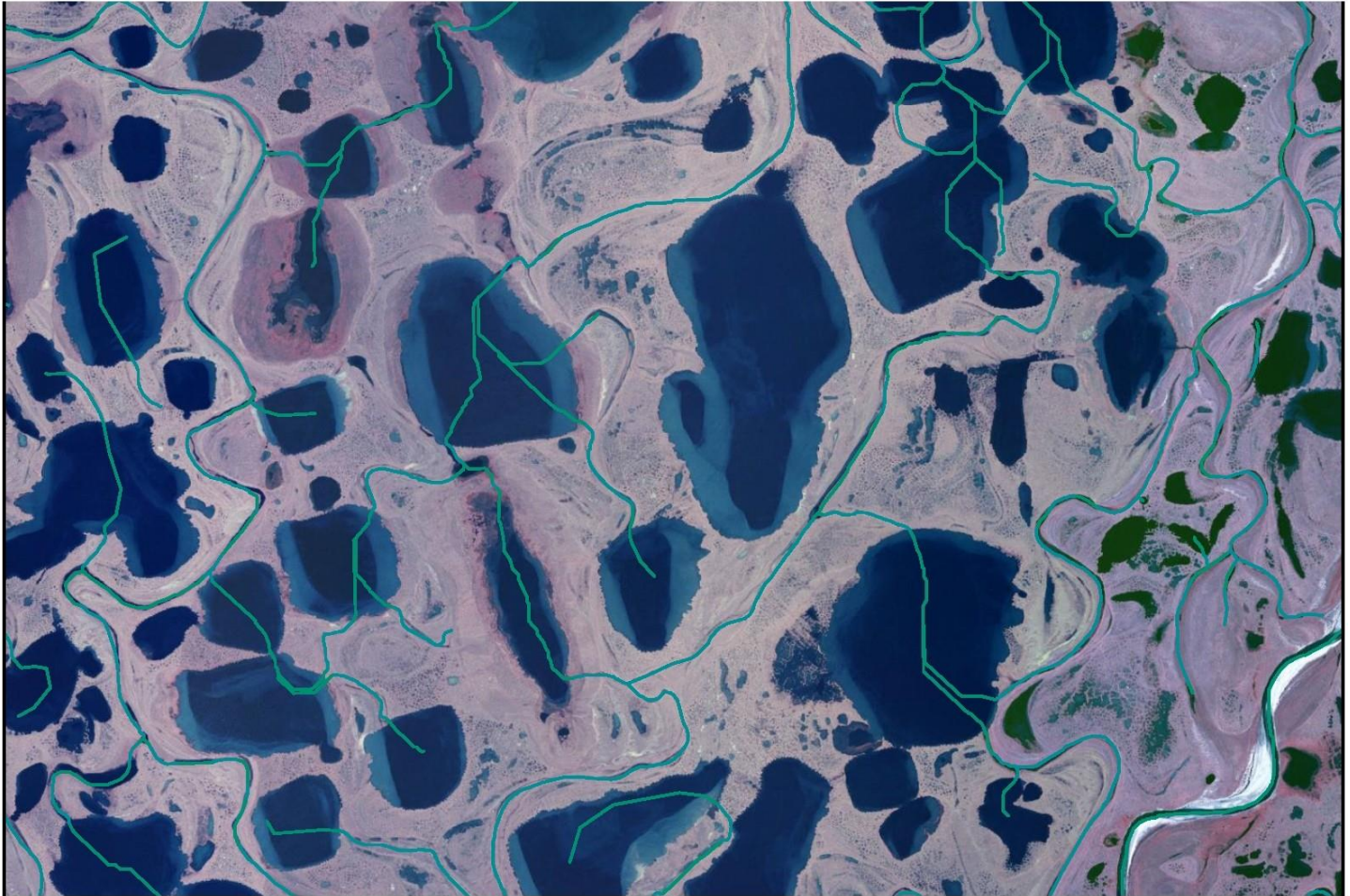
Extinction

North Slope Lakes and Predicting Future Conditions



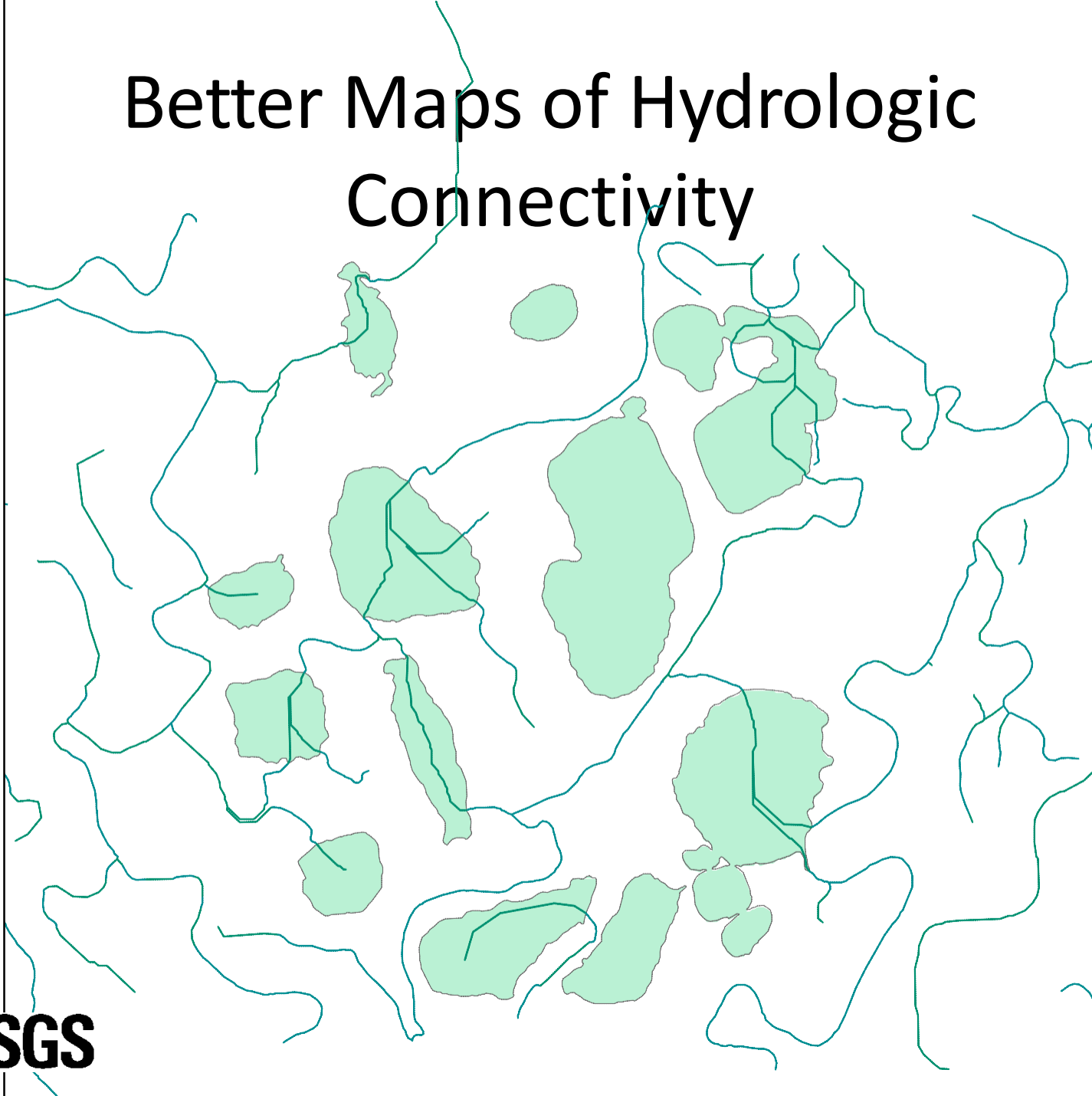


- USGS



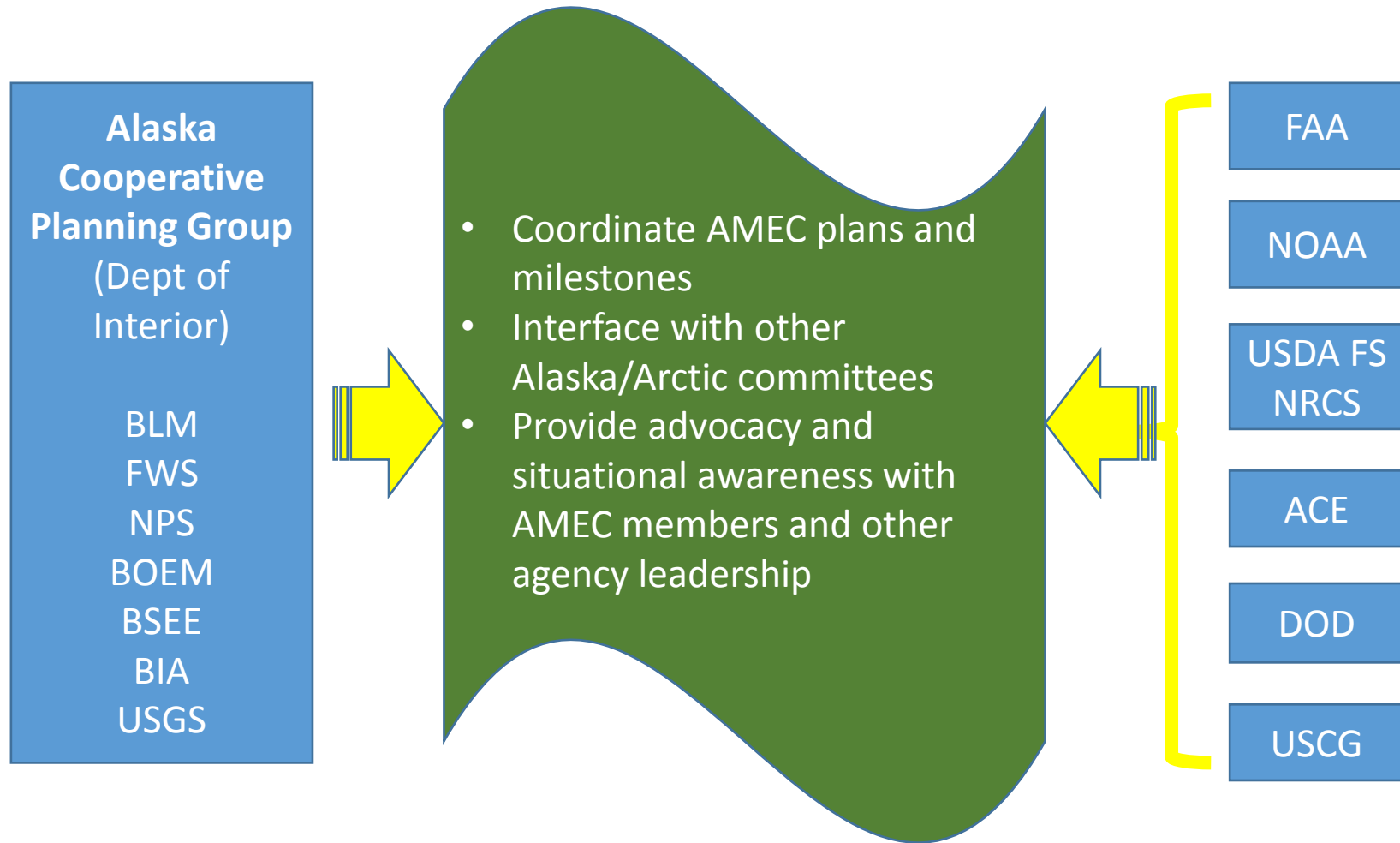
- USGS

Better Maps of Hydrologic Connectivity



Alaska Federal Executive Coordination

Utilize an existing coordination group with routine meetings; add AMEC partner and stakeholder agency reps.



Alaska Geospatial Council

Update for the Alaska Mapping Executive Committee

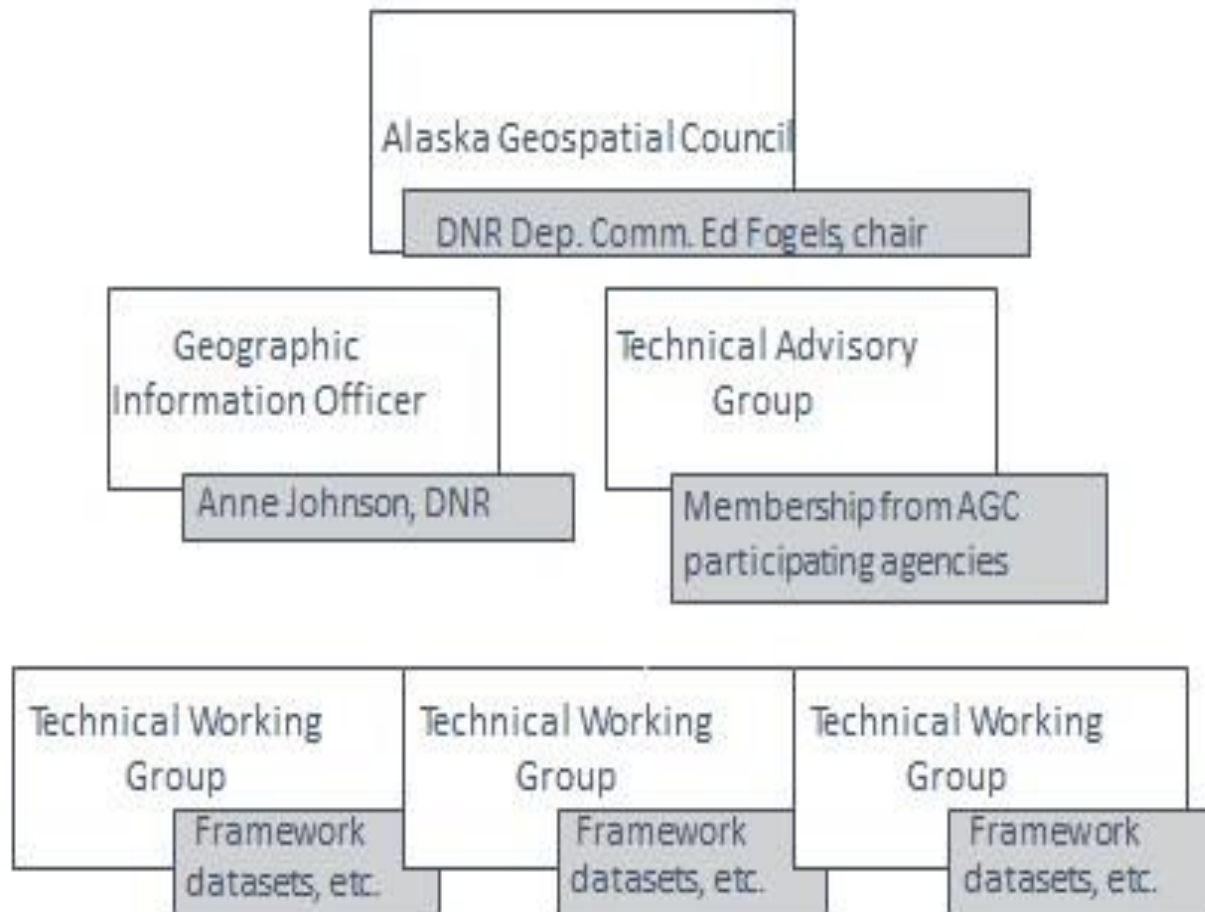
June 21, 2016

State of Alaska update topics

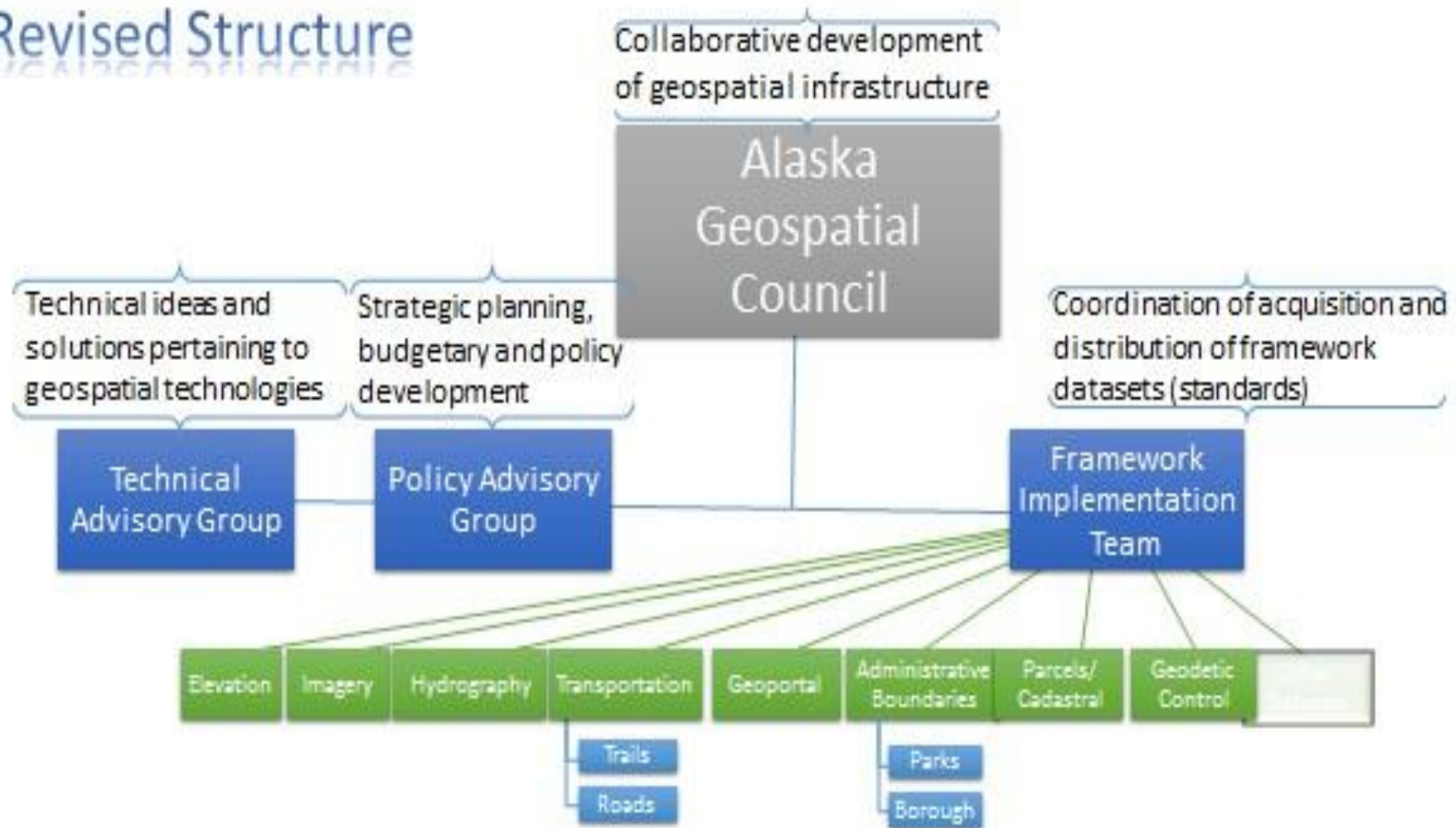
- Alaska Geospatial Council Status
- Federal Representation AGC
- Technical Working Groups
- Themes
- Critical Geospatial Data Requirements

Alaska Geospatial Council

(Former structure)



Revised Structure



Working Groups: develop strategic plans and implementation plans for data acquisition, maintenance and distribution, set data standards, and define data models. Additional working groups and subgroups can be deployed as needed.

Working Groups and Chairs:

- Elevation: Nick Mastrodicasa and Chris Noyles
- Imagery: Dayne Broderson and Parker Martin, until Sydney Thielke can take over in the fall.
- Hydrography: Kacy Kreiger and Brian Wright
- Transportation: Garry Remsberg and Brian Wright
- Administrative Boundaries: Identify lead from within DNR
- Cadastral: Identify lead from within DNR
- Geodetic Control: Nicole Kinsman and Jeff Freymueller
- Geoportal: (need nominee) and Kim Homan
- Hazards: expand Sitka Working Group, adopt under AGC?

Data Acquisition Accomplishments

Spring 2016

Theme	Metric	Status
Geodetic Control	% area within 250km of 3 CORS	74% coverage; 47% at risk
Elevation	% IfSAR acquired	69% complete
Imagery	% coverage within 5 yrs	64% current
Hydrography	% updated to 1:24k National Hydrography Dataset standards	15% updates complete
Transportation	% road network complete	100% complete
Administrative Boundaries	% boundaries updated to 1:24k map accuracy	Unknown
Cadastral	% cadastral complete	Unknown
GRAV-D	% GRAV-D acquired	55% complete
Coastal Mapping	% AK shoreline updated	43% complete
Bathymetric Mapping	% submerged lands mapped	Unknown

FRAMEWORK STATUS UPDATES

<http://arcg.is/1Ua2N40>

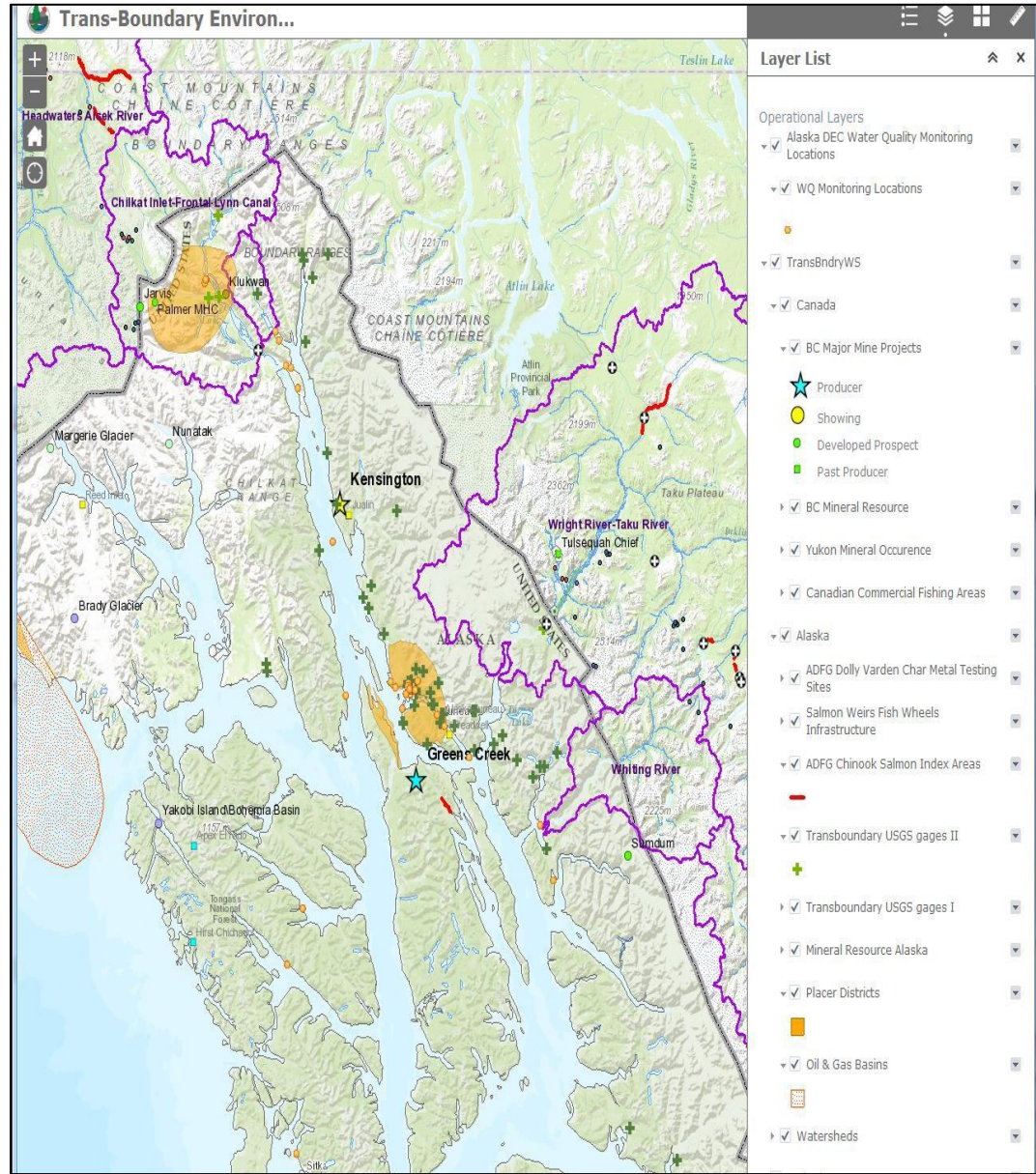
Alaska Mapping Updates

- Orthoimagery coastal refresh and web services
- Transboundary mapping application
- Geologic mapping and IfSAR data distribution

Alaska Mapping Top 5 Needs:

1. IfSAR completion
2. Hydrographic mapping
 - a) Support for AK hydro
 - b) Basic wetlands mapping and assessment
 - c) Coastal and bathymetric mapping
3. Imagery refresh
4. Geodetic Control (the need for stable, ongoing geodetic control cannot be emphasized enough)
5. Arctic and coastal mapping

Transboundary web mapping application (in development)



<http://soa-dnr.maps.arcgis.com/apps/webappviewer/index.html?id=f97f33c489d94f2ca64850fc7405936f>

Interactive Maps

maps.dggs.alaska.gov

<http://maps.dggs.alaska.gov/>

State of Alaska myAlaska My Government Resident Business in Alaska Visiting Alaska State Employees

Alaska Department of Natural Resources
Division of Geological & Geophysical Surveys

Home About Us Publications Sections STATEMAP Geophysics Geologic Materials Center Contact Us Links


Natural Resources > Geological & Geophysical Surveys > Interactive Maps

Interactive Maps

Geologic Materials Center Inventory

This interactive map allows users to view inventory details of the Alaska GMC sample repository.


[See citation details for Geologic Materials Center Inventory](#)



Elevation Datasets in Alaska

This interactive map displays known public-domain elevation datasets in Alaska.

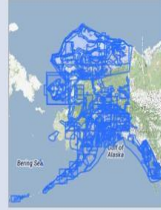
[See citation details for Elevation Datasets in Alaska](#)



Geologic Map Index of Alaska

Map Index provides outlines of DGGS and USGS geology-related maps of Alaska.


[See citation details for Geologic Map Index of Alaska](#)



Quaternary Faults and Folds (QFF)

This interactive map displays locations and relative activity of Alaska's faults and folds.


[See citation details for Quaternary Faults and Folds \(QFF\)](#)



Alaska Shoreline Change Tool

This interactive tool displays historic and predicted shoreline position throughout Alaska.


[See citation details for Alaska Shoreline Change Tool](#)



Alaska Coastal Profile Tool

This interactive tool enables access to beach elevation profile measurements collected throughout Alaska since the 1960s.

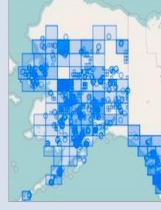
[See citation details for Alaska Coastal Profile Tool](#)



Alaska Geologic Data Index (AGDI)

AGDI includes information about industry reports and maps, field notes, drill logs, and other unpublished geology-related data.

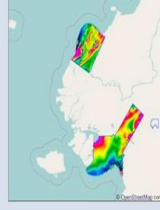
[See citation details for AGDI](#)



Airborne GeophysWeb

This interactive map is a compilation of publicly available airborne geophysical surveys conducted in Alaska since 1993 by DGGS and other cooperating agencies.

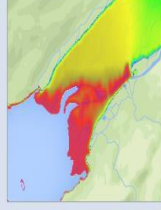
[See citation details for Airborne GeophysWeb](#)



Alaska Tsunami Inundation Maps

This interactive tool displays tsunami inundation maps in Alaska. (DGGS hosted map coming soon)

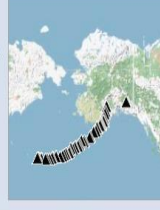
[See citation details for Alaska Tsunami Inundation Maps](#)



Historically Active Volcanoes of Alaska

This interactive map displays the location of historically active volcanoes of Alaska.

[See citation details for Historically Active Volcanoes of Alaska](#)



Orthoimagery

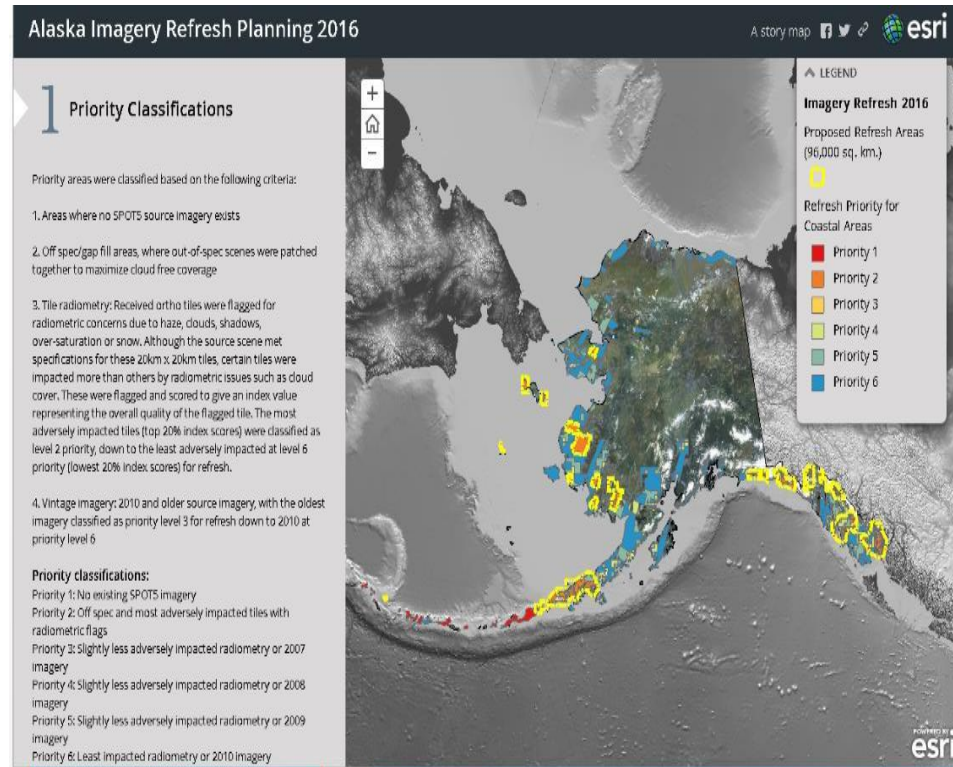
Completed to date: 99% statewide coverage 2.5-meter orthoimagery; but more than 1/3 is more than 5yrs old

Current Status: 96,000 km² new 1.5-meter imagery; uplift of Glacier Bay and Katmai National Park Service 0.5-meter imagery

Planned Work: University QA/QC,
ingest & distribution of new
imagery

Issues: Support for web mapping services and data distribution after 12.31.2016; continued refresh

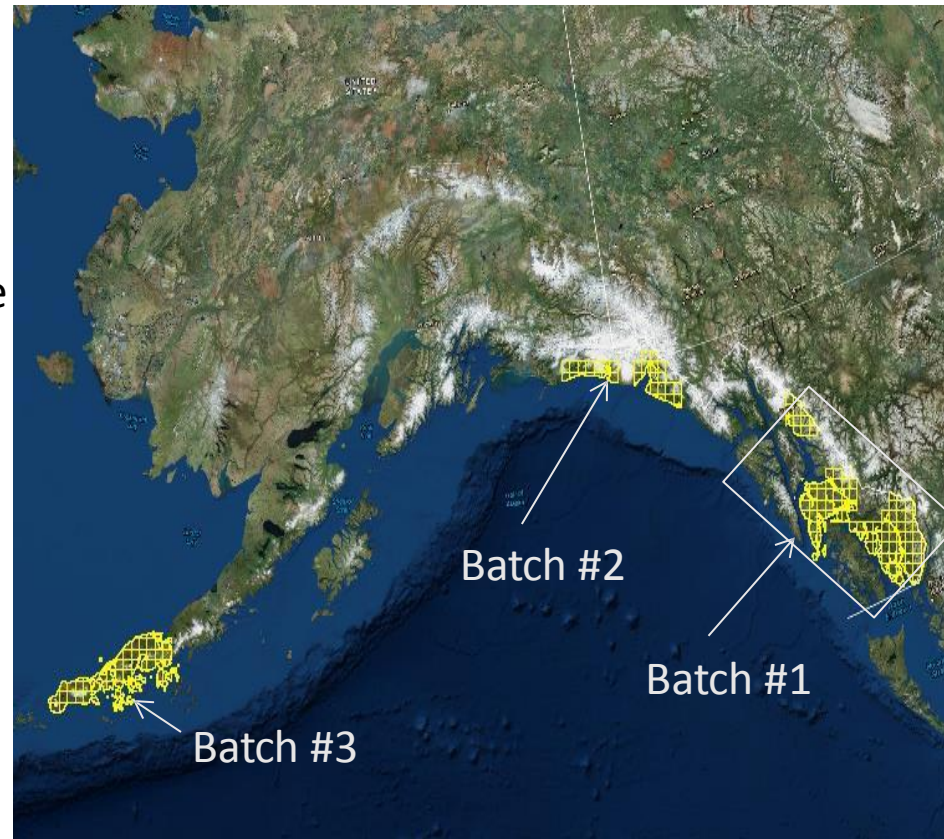
Estimated cost: \$2M annual for fully funded program (3-year refresh)



2016 Ortho Refresh: Batch 1-3

- Total Area: 58,468km², June 30 scheduled delivery.

Despite the cloudy appearance of many of the batch screenshots near cloud-free coverage is expected within each batch by cloud patching multiple images. Unless otherwise noted.



Budget Planning

(DNR funding, In thousands)

	2016	2017	2018	2019 (to 12.31 2018)	Total
Personnel Services	\$84	\$160	\$167	\$75	\$486
AK IfSAR	\$1,313				\$1,313
AK Hydro		\$25			\$25
Training	\$5	\$3	\$9	\$9	\$26
Software licensing		\$15	\$15	\$15	\$45
Commodities	\$15	\$2	\$2	\$2	\$21
Data distribution		\$50	\$175	\$175	\$400
TOTAL	\$1417	\$255	\$369	\$275	\$2,341

Budget Planning

(In thousands)

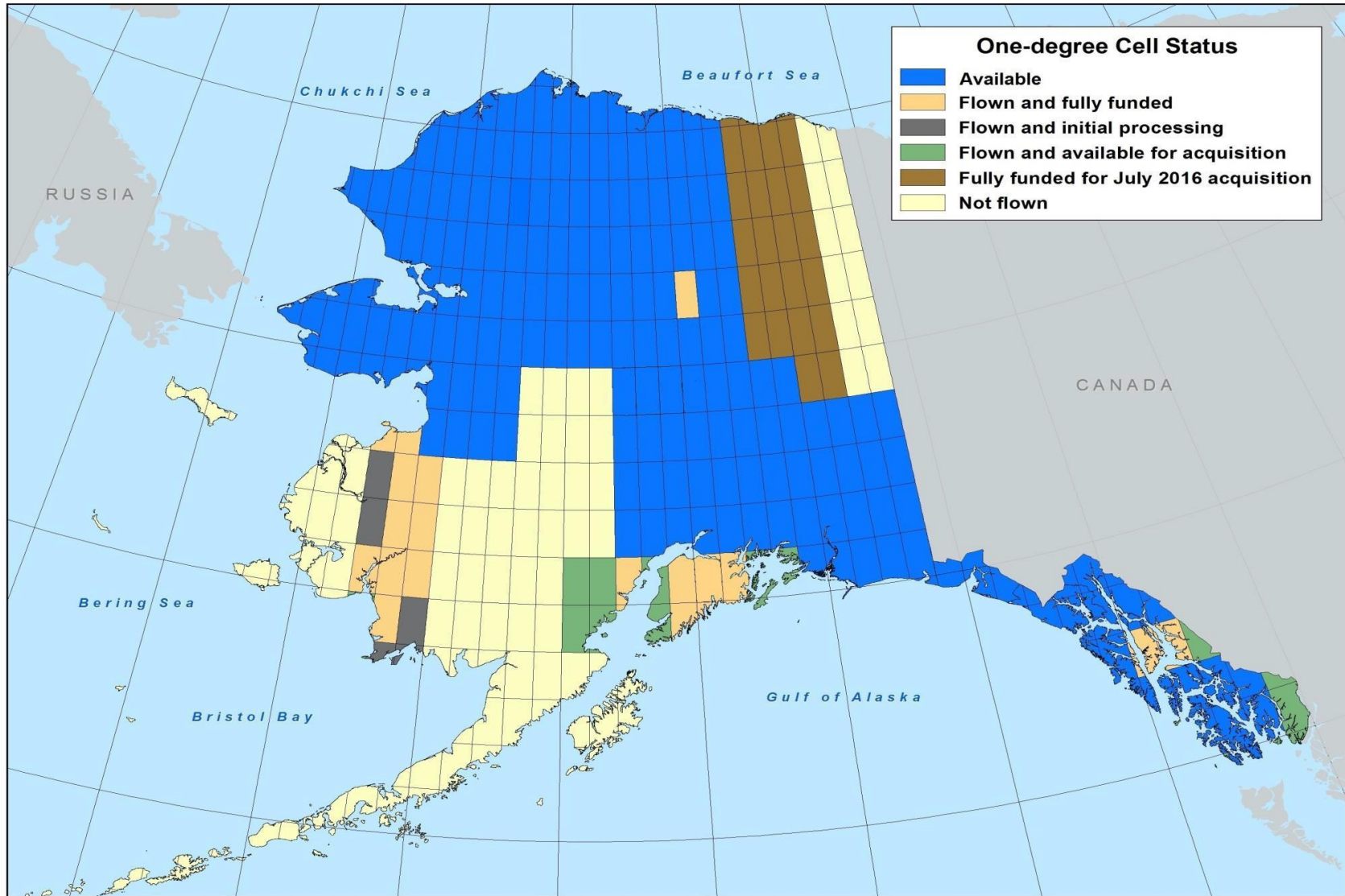
Once datasets are complete, ~\$2-3M annual costs for data stewardship programs, including maintained data updates and distribution.

	2016	2017	2018	2019	2020
Geodetic Control	\$xx	\$xx	\$xx	\$xx	\$xx
IfSAR	\$8,700	\$8,500	\$8,100		
Imagery	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
AK hydro	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Transportation (inc trails, etc)	\$xx	\$xx	\$xx	\$xx	\$xx
Administrative Boundaries	\$xx	\$xx	\$xx	\$xx	\$xx
Cadastral	\$xx	\$xx	\$xx	\$xx	\$xx
Data distribution	\$500	\$500	\$500	\$500	\$500
TOTAL	\$13,200	\$13,000	\$12,600	\$4,500	\$4,500



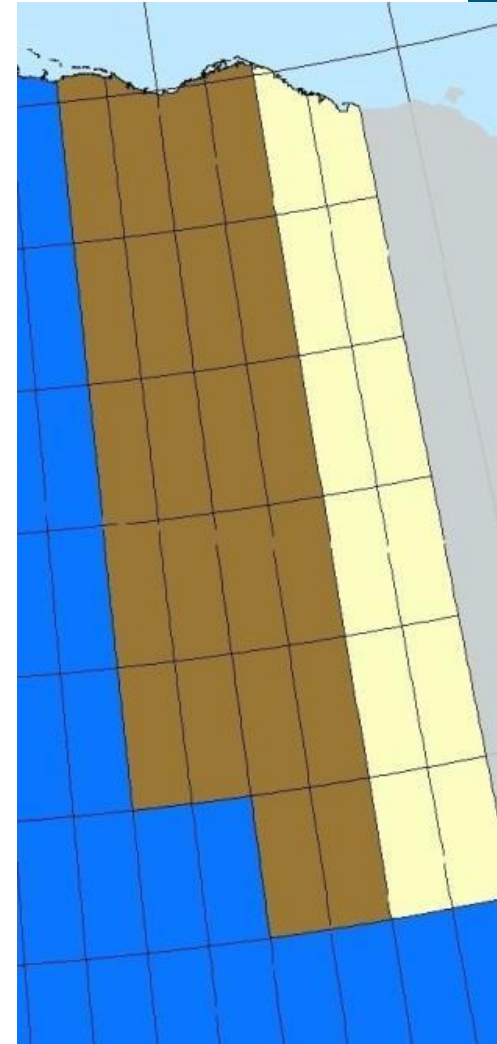
Detailed Alaska IfSAR Status

69% of the State is available for download or is in work



+ IfSAR FY2016 Objectives

- Complete remaining two columns of 1-degree cells in NE Alaska IfSAR with EOY contributions
- Surpass 70% coverage available or funded and in work
 - ❖ Opportunity for EOY Funding

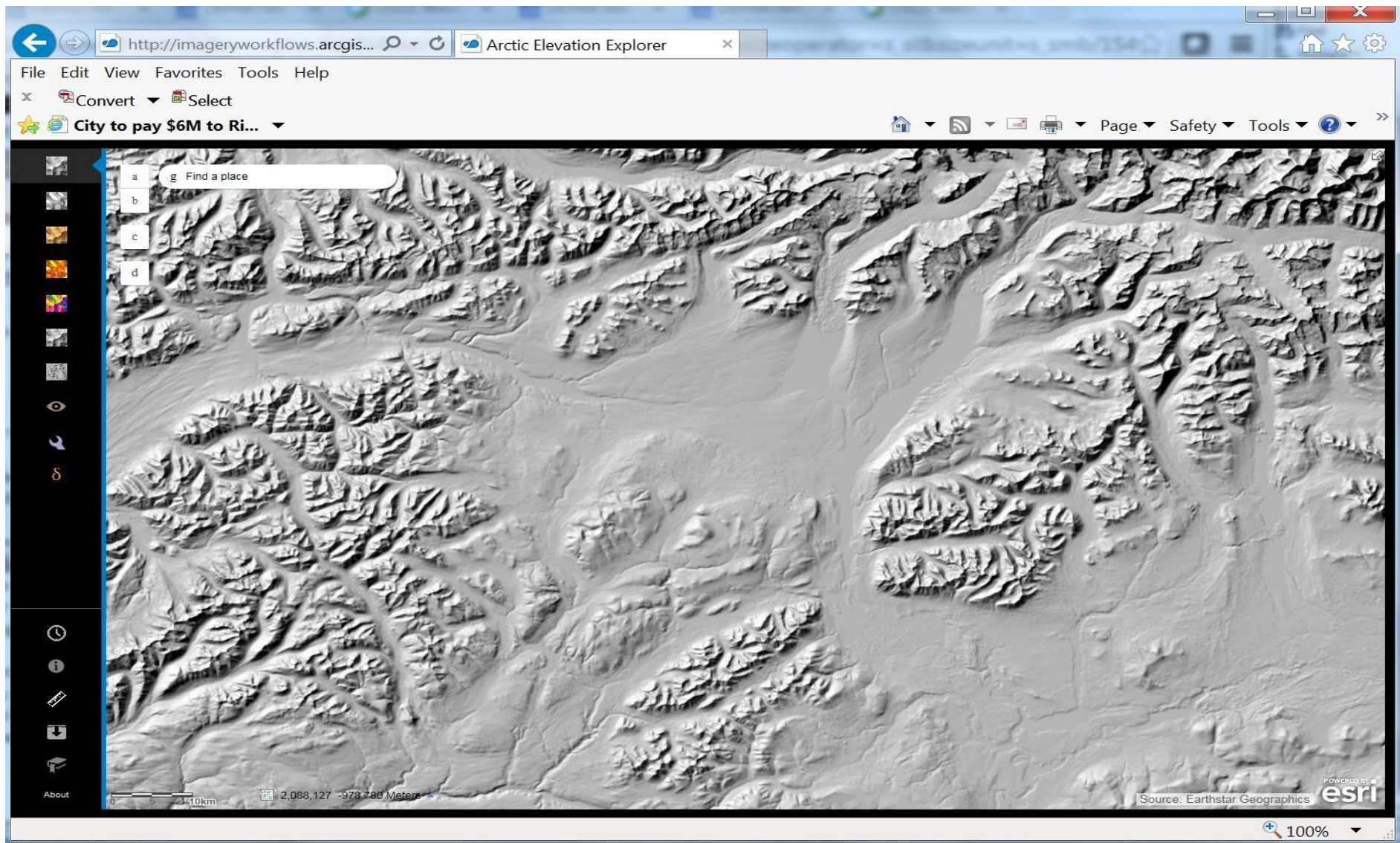


+ IfSAR Budget Cross Cut

60

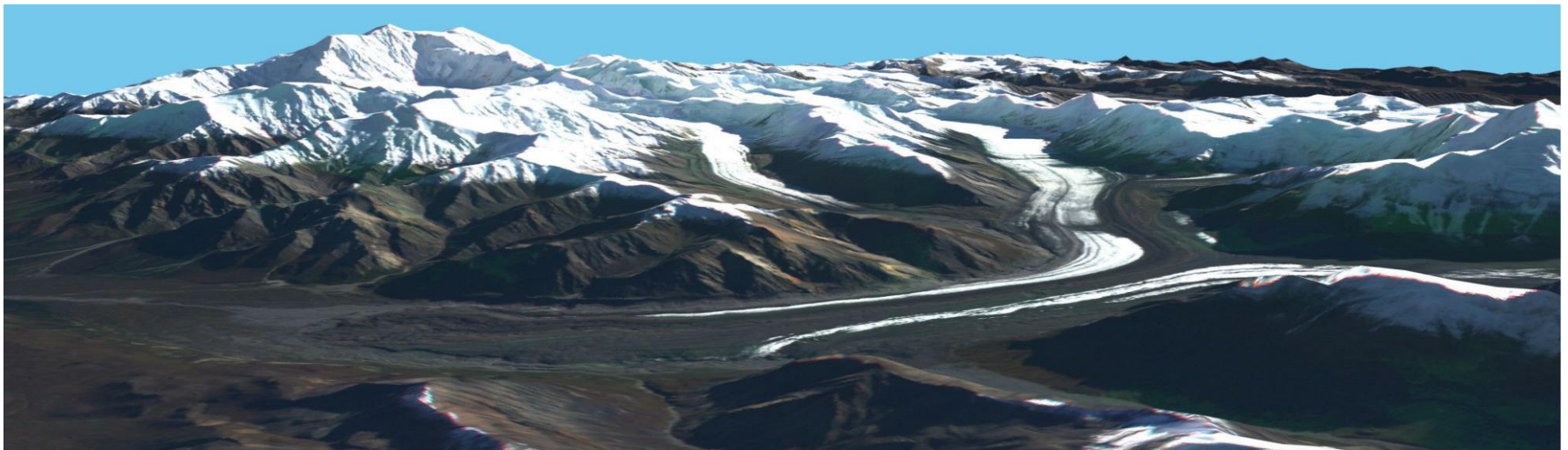
		Previous Contributions							AMEC 3-YEAR PLAN			
		FY10 Actual	FY11 Actual	FY12 Actual	FY13 Actual	FY14 Actual	FY15 Actual	3 Budget Scenarios for outyears	FY16	FY17	FY18	Total FY10-FY18
								Target Funding	\$8,700,000	\$8,500,000	\$8,100,000	\$63,360,811
Agency Contributions and plans	BLM	\$216,230	\$20,000	\$0	\$141,139	\$262,000	\$2,112,149	Planned	\$250,000	\$250,000	\$250,000	\$3,501,518
								Average	\$458,586	\$458,586	\$458,586	\$4,127,277
								Fully Funded	\$1,074,603	\$1,329,358	\$1,236,720	\$6,392,200
	FWS	\$0	\$0	\$550,000	\$0	\$0	\$250,000	Planned	\$0	\$0	\$0	\$800,000
								Average	\$133,333.33	\$133,333.33	\$133,333.33	\$1,200,000
								Fully Funded	\$1,074,597	\$1,329,351	\$1,236,713	\$4,440,661
	NPS	\$98,091	\$147,143	\$178,533	\$30,000	\$0	\$931,581	Planned	\$400,000	\$0	\$0	\$1,785,348
								Average	\$230,891.33	\$230,891.33	\$230,891.33	\$2,078,022
								Fully Funded	\$182,830	\$226,174	\$210,412	\$2,004,764
	NRCS	\$98,090	\$227,287	\$728,095	\$450,000	\$450,000	\$350,000	Planned	\$700,000	\$0	\$0	\$3,003,472
								Average	\$383,912	\$383,912	\$383,912	\$3,455,208
								Fully Funded	\$1,074,603	\$1,329,358	\$1,236,720	\$5,944,154
	USFS	\$0	\$0	\$354,310	\$50,000	\$547,292	\$383,127	Planned	\$250,000	\$100,000	\$0	\$1,684,729
								Average	\$222,454.83	\$222,455	\$222,454.83	\$2,002,094
								Fully Funded	\$713,155	\$882,222	\$820,743	\$3,750,849
	USGS	\$999,995	\$870,276	\$3,066,402	\$3,608,512	\$2,893,166	\$3,606,907	Planned	\$3,500,000	\$3,500,000	\$3,500,000	\$25,545,258
								Average	\$2,507,543.00	\$2,507,543.00	\$2,507,543.00	\$22,567,887
								Fully Funded	\$2,760,000	\$2,760,000	\$2,760,000	\$23,325,258
	NGA	\$2,399,895	\$0	\$0	\$0	\$0	\$0	Planned	\$0	\$0	\$0	\$2,399,895
								Average	\$399,982.50	\$399,982.50	\$399,982.50	\$3,599,843
								Fully Funded	\$520,211	\$643,537	\$598,691	\$4,162,333
	ALASKA	\$1,874,918	\$0	\$4,998,388	\$2,550,000	\$2,617,285	\$0	Planned	\$1,300,000	\$0	\$0	\$13,340,591
	Annual Total	\$5,687,219	\$1,264,706	\$9,875,728	\$6,829,651	\$6,769,743	\$7,633,764	Planned	\$6,400,000	\$3,850,000	\$3,750,000	\$52,060,811
								Average	\$5,636,703	\$4,336,703	\$4,336,703	\$52,370,921
								Fully Funded	\$8,700,000	\$8,500,000	\$8,100,000	\$63,360,811
	GAP = Shortfall of Target Funding							Planned	\$2,300,000	\$4,650,000	\$4,350,000	\$11,300,000
								Average	\$3,063,297	\$4,163,297	\$3,763,297	\$10,989,890
								Fully Funded	\$0	\$0	\$0	\$0

Prototype ESRI IfSAR EXPLORER (Image Service of AK IfSAR Data)



+ BREAK

- 20 minutes
- Meet and Greet - networking opportunity

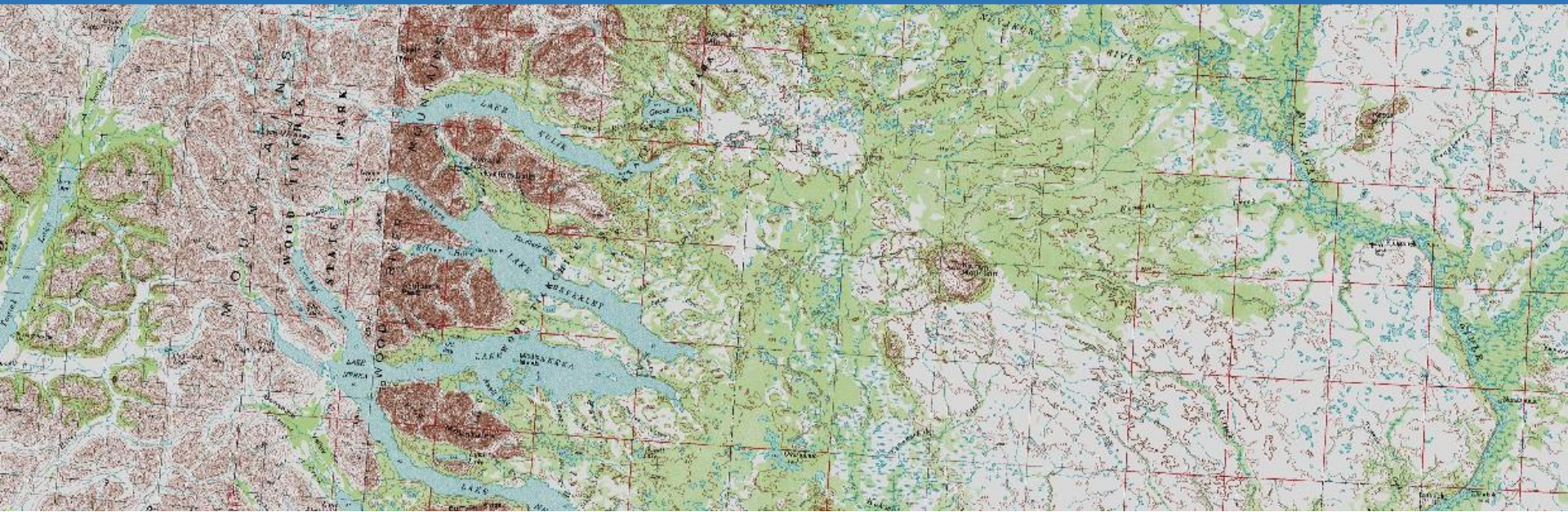


+ Aleutian DEM Options

- Dave Maune, Dewberry
- WorldDEM evaluation results

MAPPING ALASKA'S WATER

ALASKA HYDROGRAPHY STATUS UPDATE



June 21, 2016

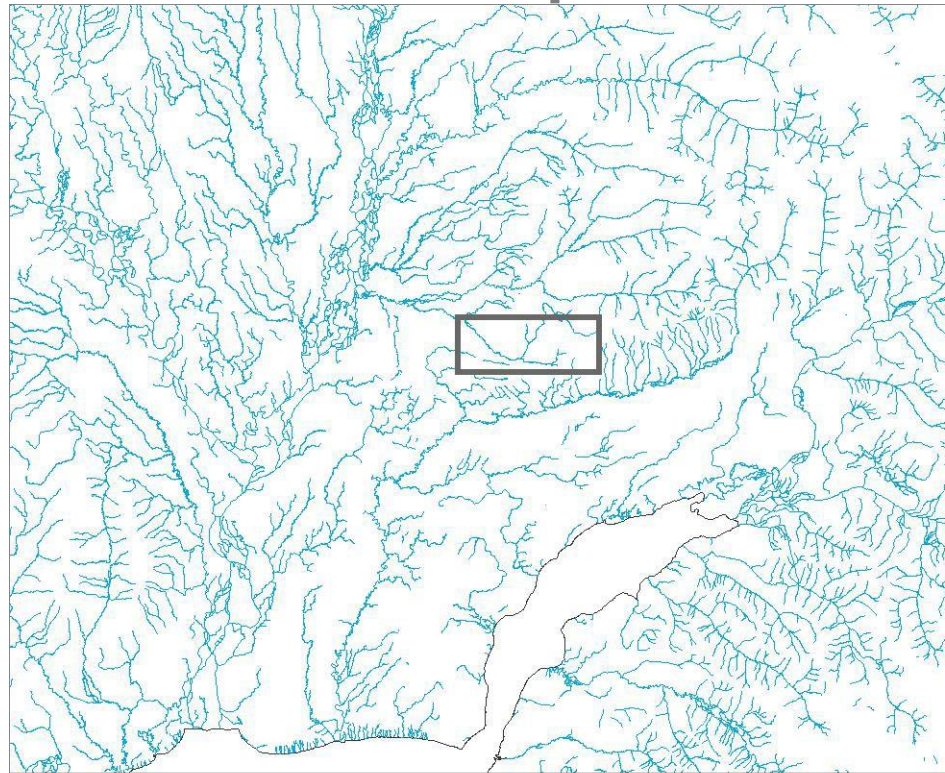
**Alaska Mapping Executive
Committee**

Kacy Krieger
kekrieger2@uaa.alaska.edu
AK Hydrography Coordinator
AHTWG Co-Chair

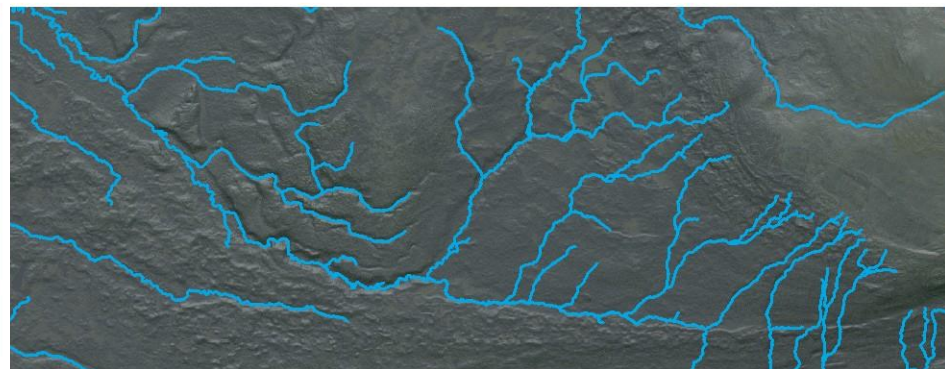
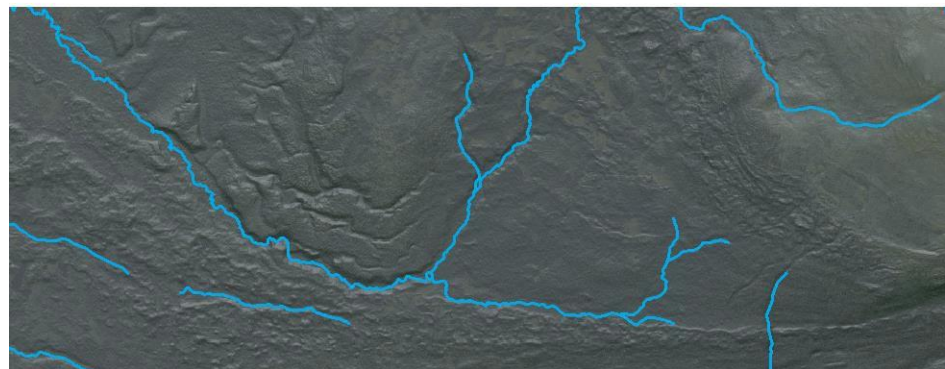
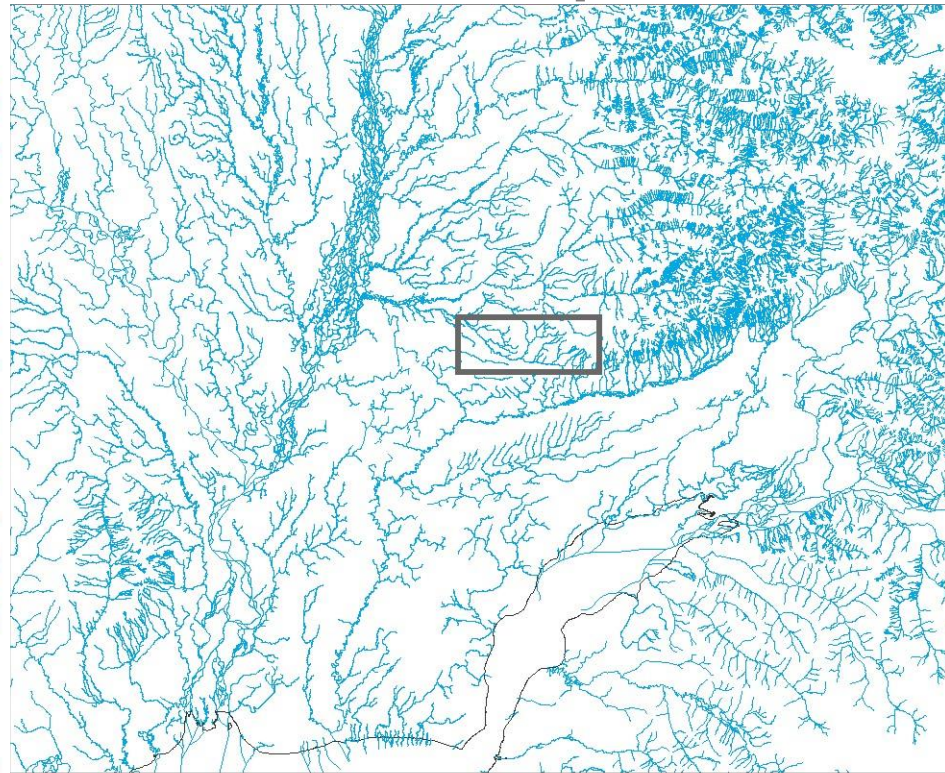
Brian Wright
bwright@usgs.gov
USGS National Map Liaison
AHTWG Co-Chair

HYDROGRAPHY UPDATES

2009: Pre-Updates



2015: Post-Updates





RIVERS & STREAMS



LAKES & PONDS



COASTLINE



WETLANDS

HYDROGRAPHY

GLACIERS



DIVERSIONS



IMPEDIMENTS



FLOW NETWORKS



ACCOMPLISHMENTS

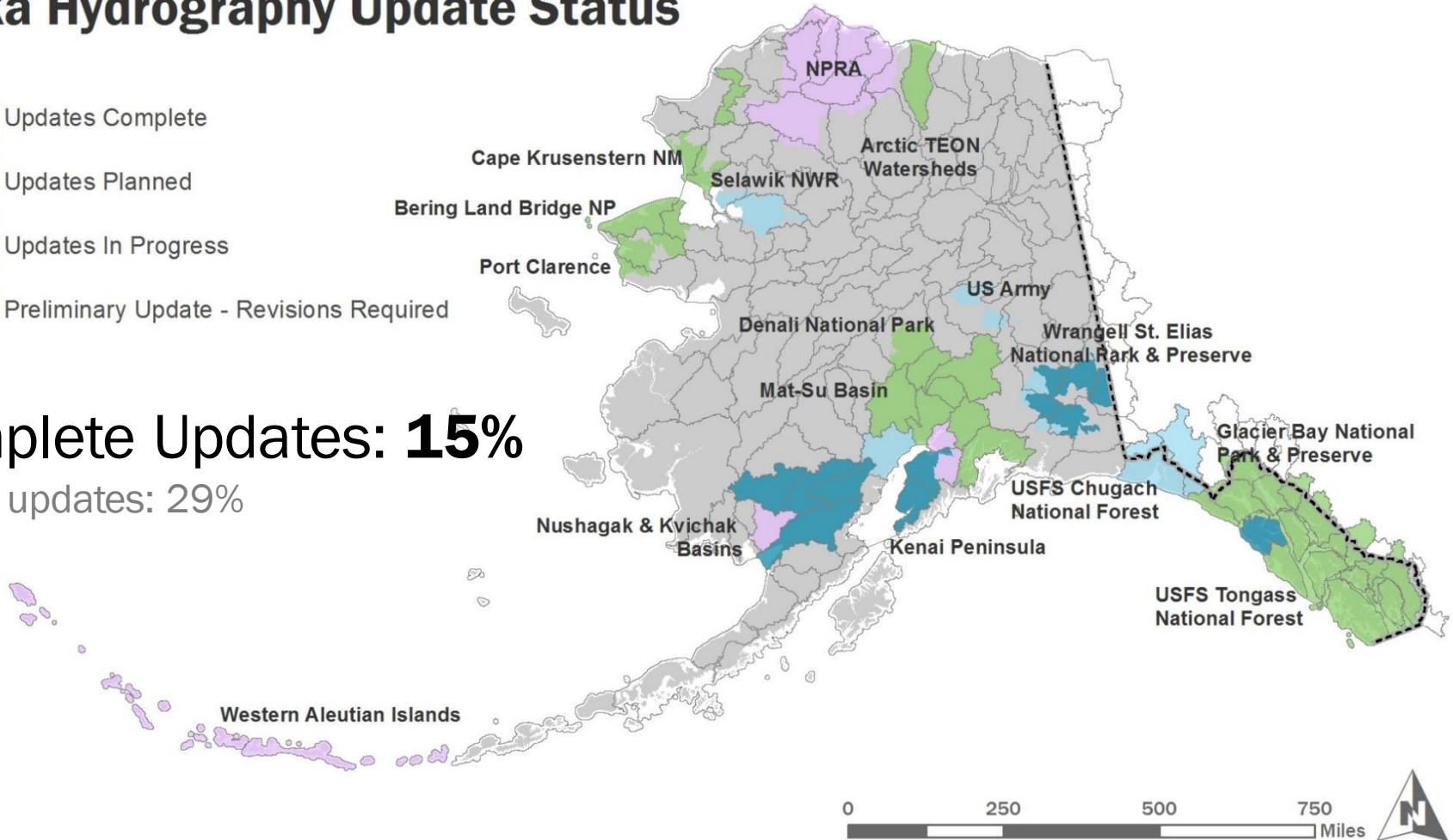
major project status

Alaska Hydrography Update Status



Complete Updates: **15%**

partial updates: 29%



Alaska Hydrography

UPDATE OPTIONS

Option 1

Statewide Contract

- Full hydrography update
- based on elevation data
- 2D features updated from existing datasets and IfSAR hydro masks
- Work performed by contracted vendor
- Partner support through AK Hydro
- Updates at \$55.00/mi²

Total Est. Cost **\$36,800,000 ±**

Option 2

Collaborative Updates

- Full hydrography update
- based on elevation data
- 2D features updated from existing datasets and IfSAR hydro masks
- Attributes from models, partners, and editors
- Edits, updates and validation work performed by Universities and partners through AK Hydro with support from USGS
- Costs cover AK Hydro Staffing and updates (bonus of AK Hydrography Coordinator covered)
- Updates at \$13.00/mi²

Total Est. Cost **\$10,000,000 ±**

ALASKA HYDROGRAPHY SUPPORT

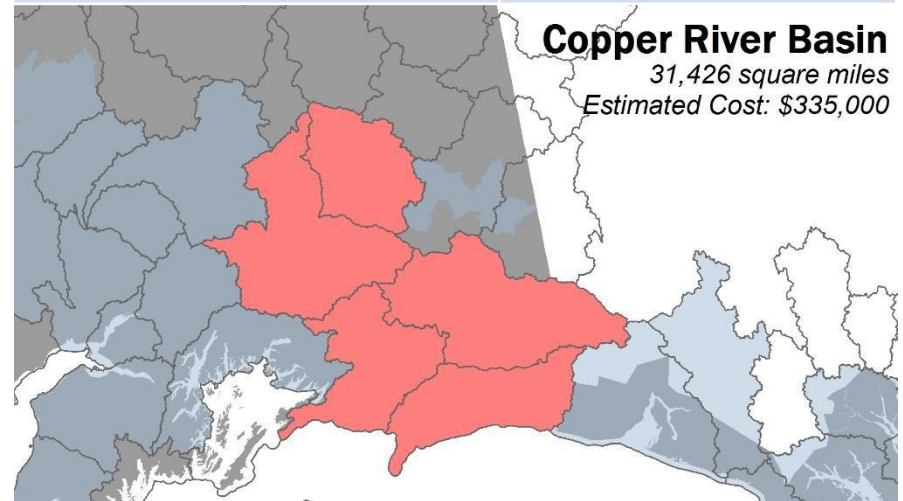
FY 2017

Statewide Hydrography Baseline Support

Category	Amount
Personnel	\$400,000
Data Model Support	\$15,000
IT Infrastructure	\$25,000
Baseline Requirements	\$440,000/year

Priority Region Updates

Project Updates	\$335,000
------------------------	------------------

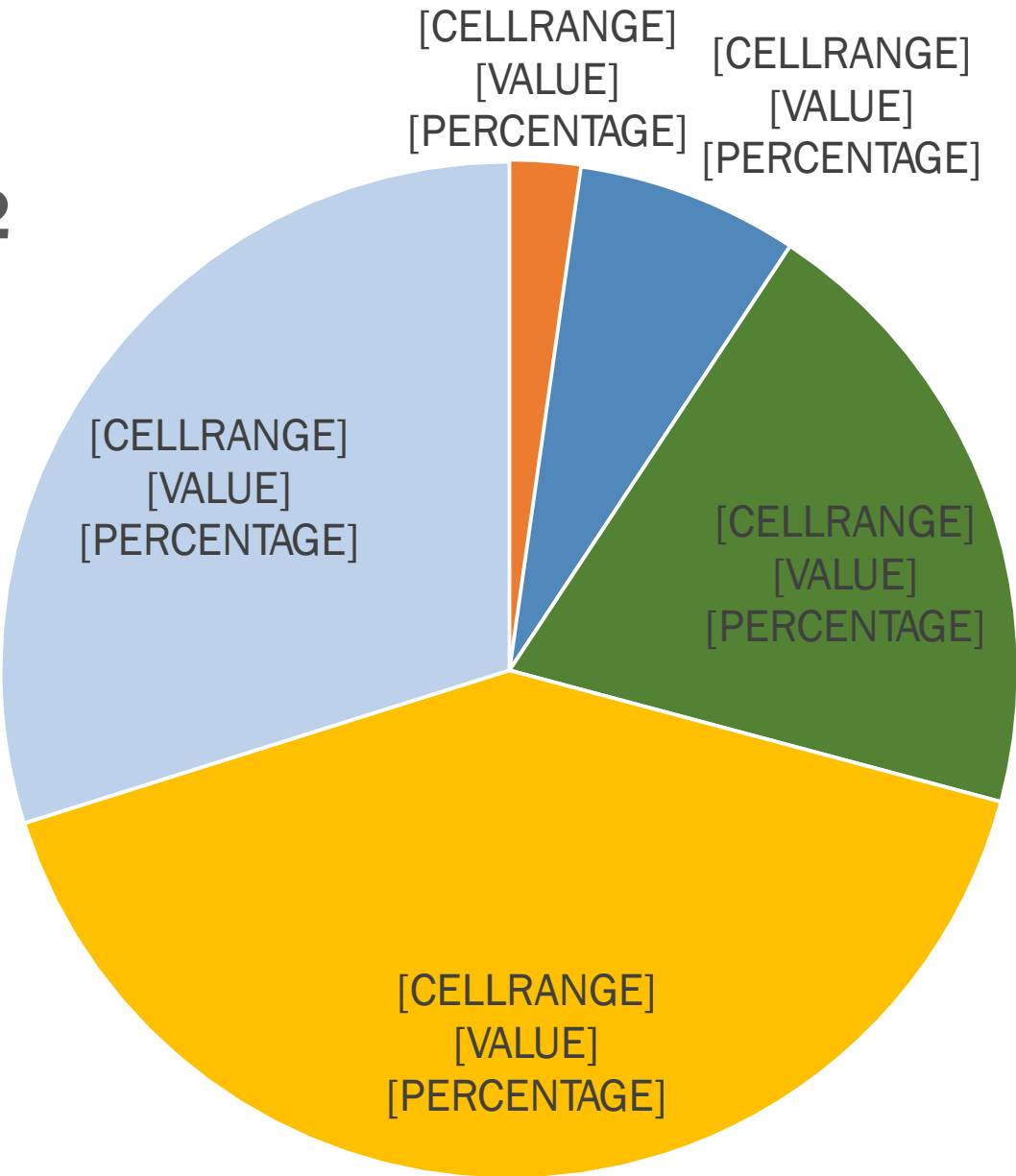


ALASKA HYDRO FUNDING SOURCES 2010-2016

Total: \$1,842,362

AK Hydro: \$1,068,392

Projects: \$773,970



FEBRUARY FY 2017 HYDROGRAPHY ASK

\$440,000/year to continue baseline hydrography work in Alaska

\$400,000 to complete hydrography updates in priority regions

- **Consider funding opportunities within your agency to support hydrography updates in Alaska.**
- **Come to the summer meeting with any ideas from your agency.**

AK HYDROGRAPHY FUNDING

FY 2017 **Shortfall: \$196,000**

	2016							2017								
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Coordinator																
Technical Steward																
Database Admin																

Existing 2017 Funding

- USGS ~ \$40,000 (*Baseline*)
- USFWS ~ \$115,000 (*Baseline*)
- USFS - \$40,000 (*Baseline*)
- AK DNR - \$25,000 (*Baseline-Infrastructure*)

Potential 2017 Funding

- USFWS - \$81,600 (*Baseline & Projects in Cook Inlet*)
- USGS - \$50,000 (*WBD updates in Mat-Su*)

In Work

- NOAA (*Baseline & Projects*)
- C4 via ACCER

Modernizing the Geospatial Framework

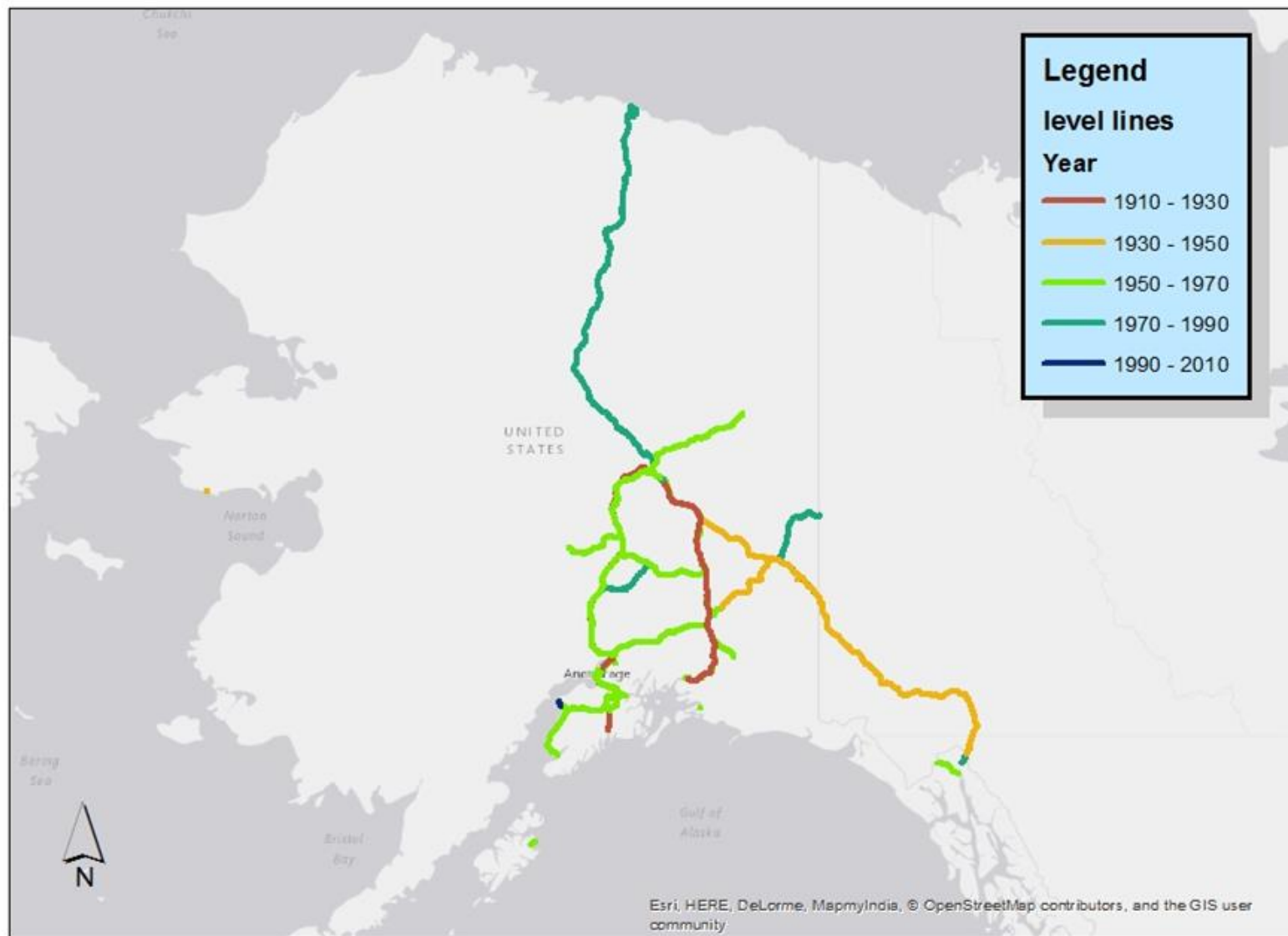
- Geodetic Control in Support of Alaska Mapping
 - Introduction to upcoming changes
 - Overview of existing active control
- NOAA Data Acquisition Accomplishments
 - GRAV-D
 - Shoreline

Meaningful Coordinates

- The **National Spatial Reference System (NSRS)** is a consistent coordinate system that defines latitude, longitude, height, scale, gravity, orientation, and shoreline throughout the United States.
- **Geodetic Control** defines the NSRS.



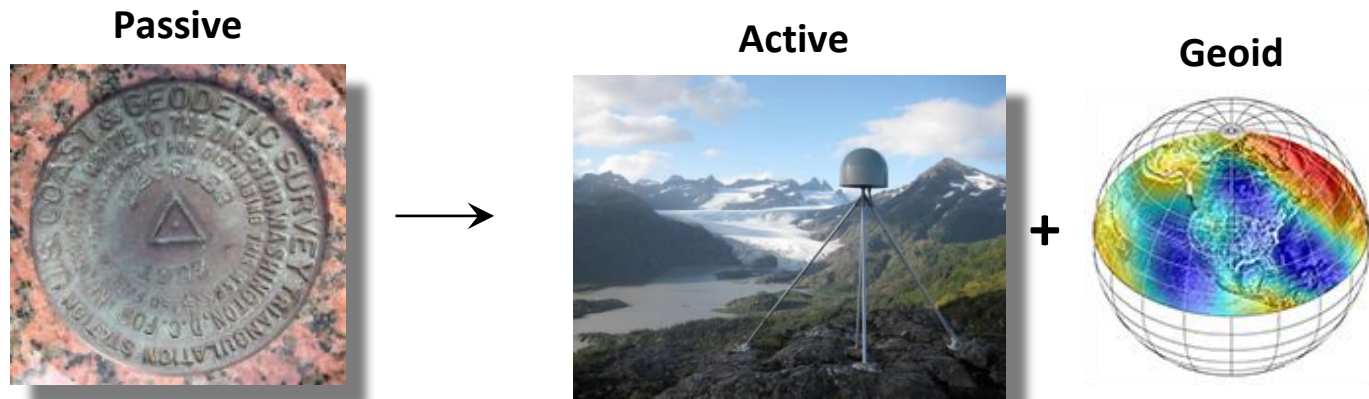
National Geodetic Survey Leveling Data Holdings for Alaska



0 335 670 1,340 Miles

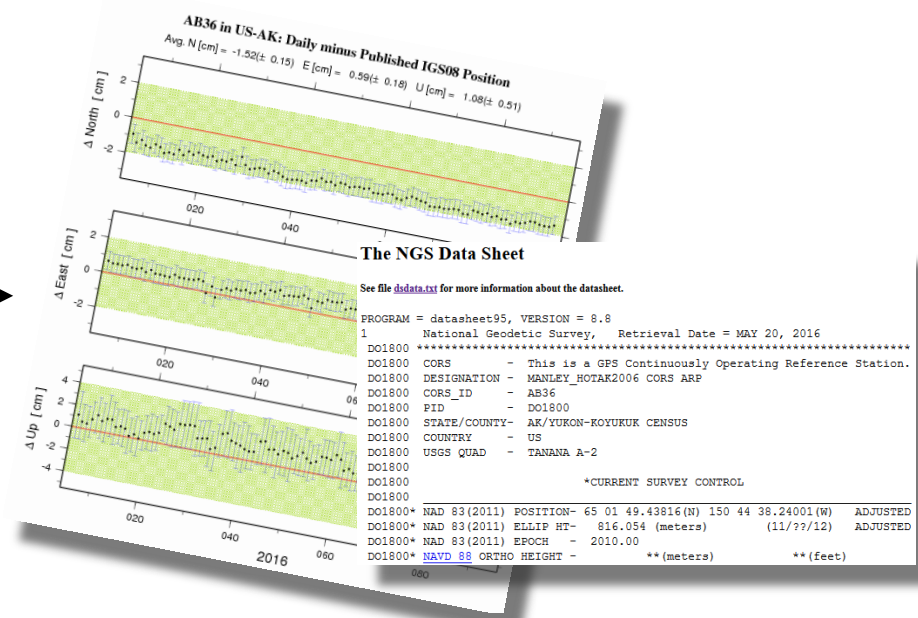
Modernization of the NSRS

- In 2022:
 - Horizontal and vertical datums will be replaced by **geometric** and **geopotential** reference systems that are time dependent
 - **Active** geodetic control (CORS) will replace **passive** geodetic control (bench marks)
 - **GPS/GNSS** will be the official gateway to the NSRS
 - GRAV-D project for a refined gravimetric geoid for the US that will enable access to orthometric heights w/in 2 cm accuracy using GPS/GNSS
- This is great news for Alaska mapping!

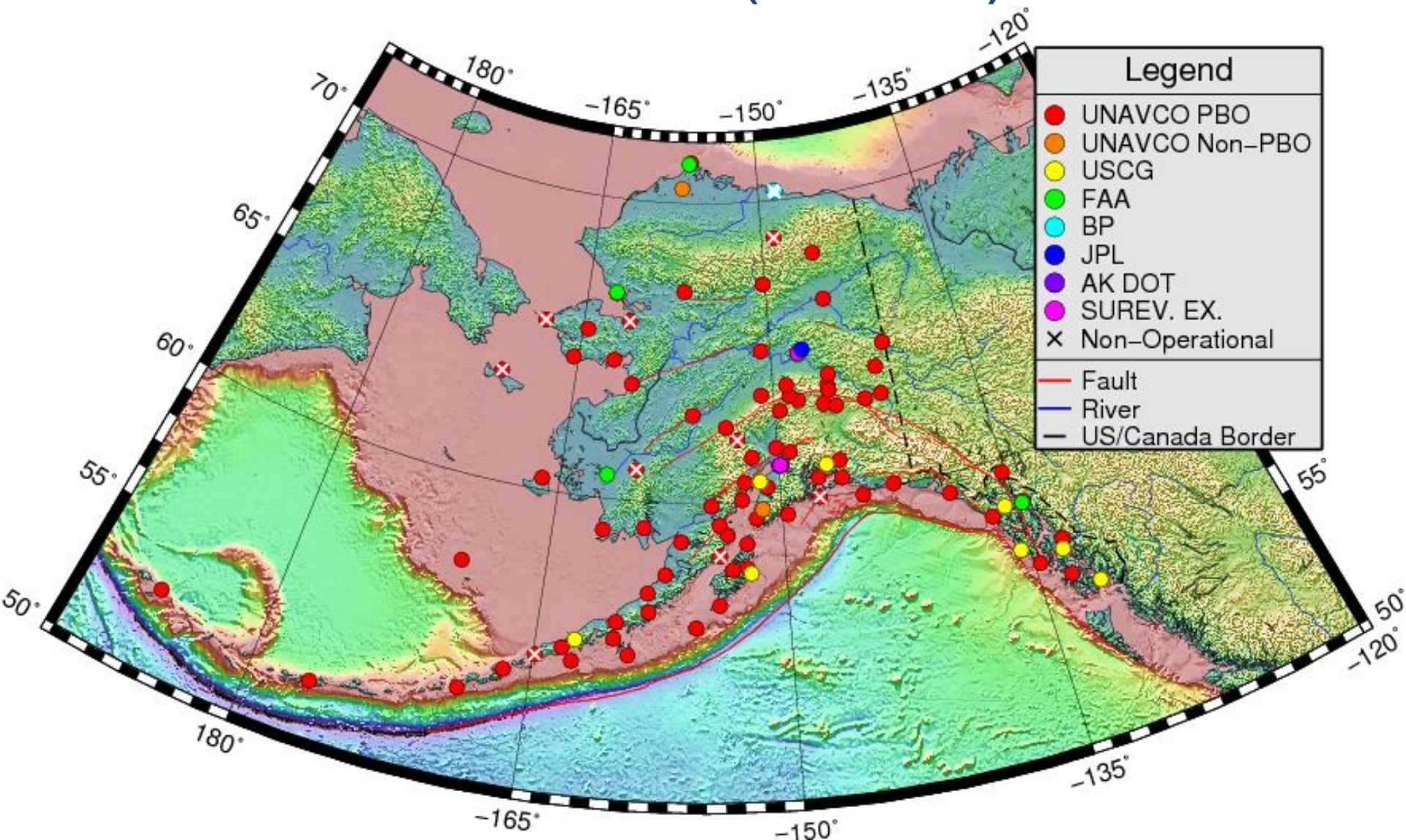


CORS Network

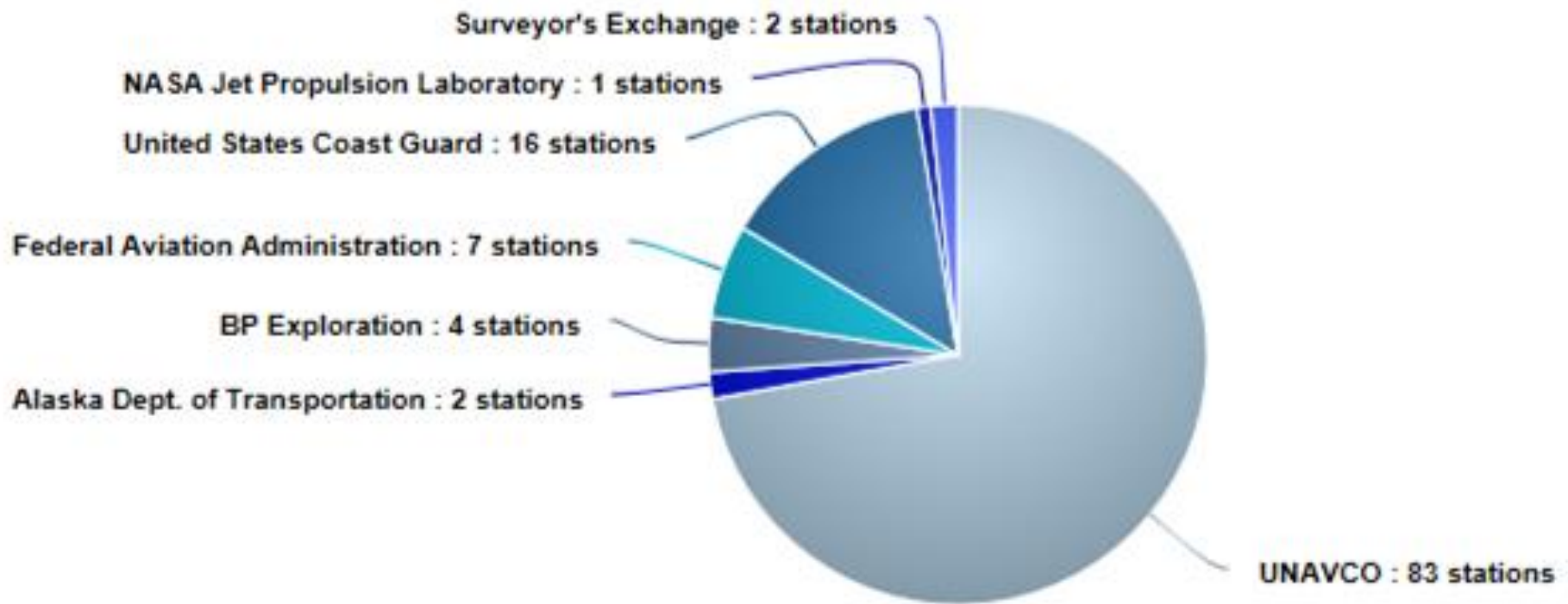
- Network of designated GNSS receivers across the United States managed by NOAA's National Geodetic Survey.
- The CORS network facilitates position activities that are tied to the National Spatial Reference System (NSRS), there are presently 115 active CORS in Alaska.
- Users can access authoritative NSRS positioning tools via NGS Online Positioning User Service (OPUS).



Continuously Operating Reference Stations (CORS)



CORS Site Owners



**81 of these are PBO sites
(70% of Alaska's CORS network)**

PBO in Alaska



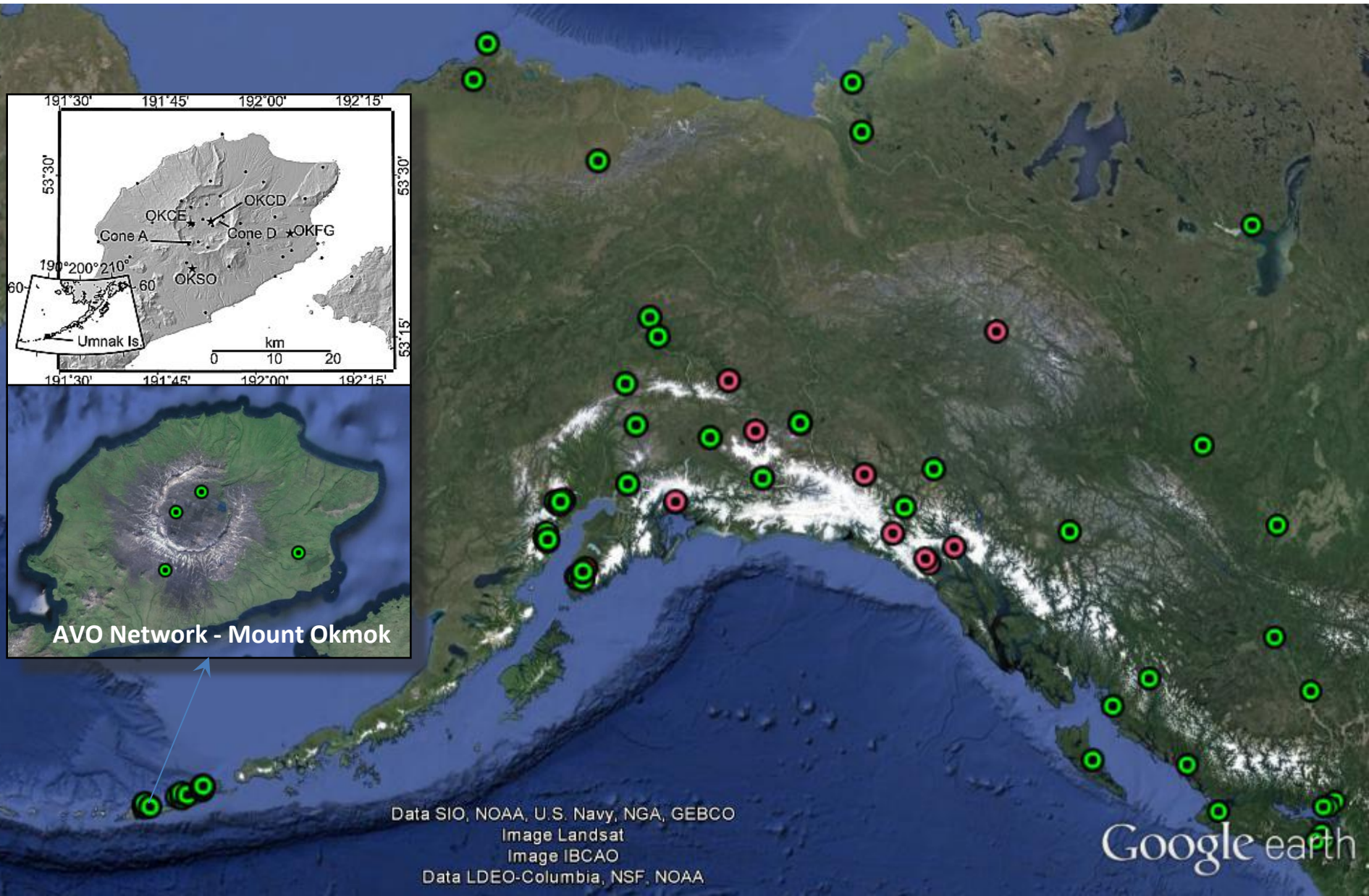
NSF
Funded
(5 year cycles)



- Plate Boundary Observatory (PBO)
- Continuous GPS receiver network
- Presently 140 sites in Alaska

- US Array/Transportable Array
- Seismometer network
- 261 sites in Alaska – install underway

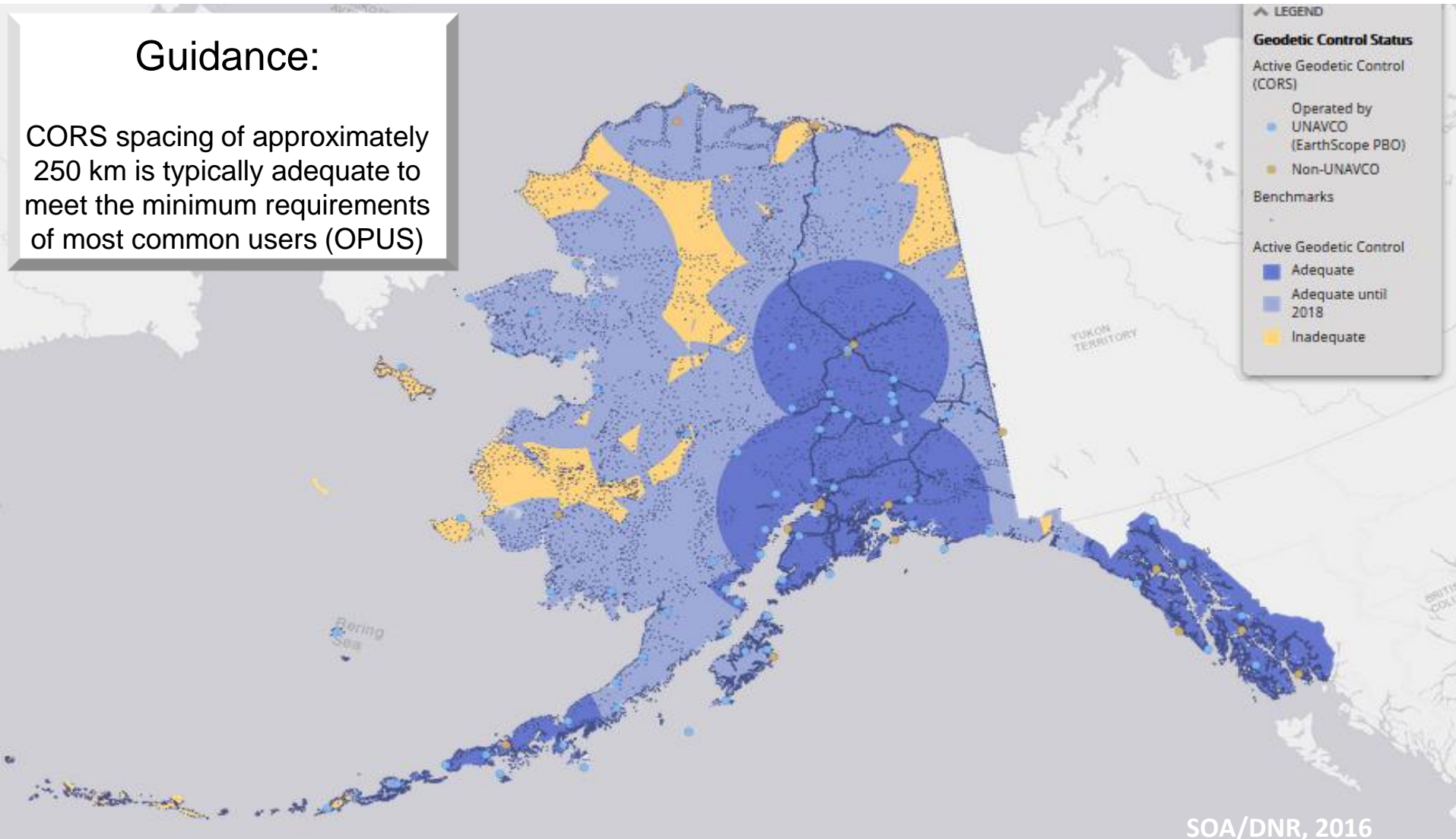
Non-PBO and Non-CORS GNSS



CORS Network Gaps

Guidance:

CORS spacing of approximately 250 km is typically adequate to meet the minimum requirements of most common users (OPUS)



SOA/DNR, 2016

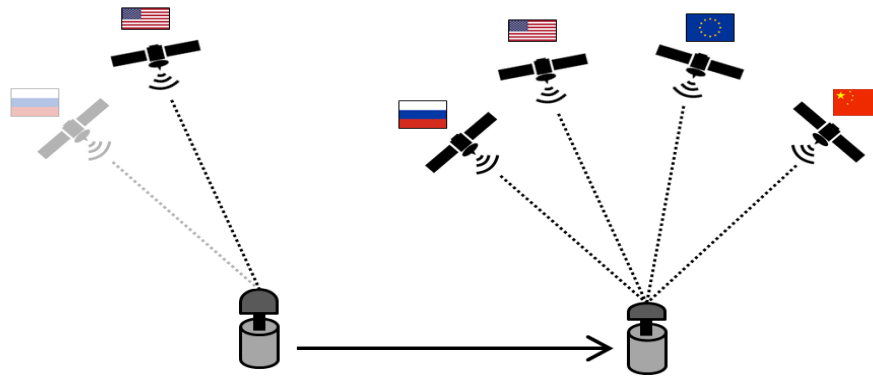
CORS Challenges

- Limited access (few roads, autonomous power, telecommunications)
- Harsh weather (high winds, extreme cold temperatures)
- Wild animals (cable/radio damages)
- Tectonically active sites
- **Higher cost** for installation and maintenance

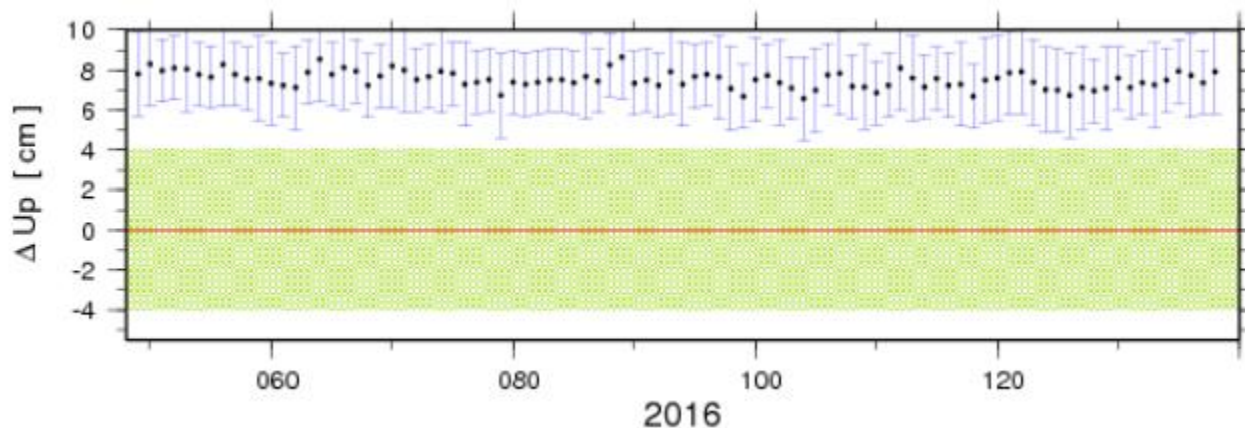


CORS Challenges in Alaska

- Communication outages occur and **10%** of stations are presently non-operational.
- Only **5%** of stations are full-GNSS



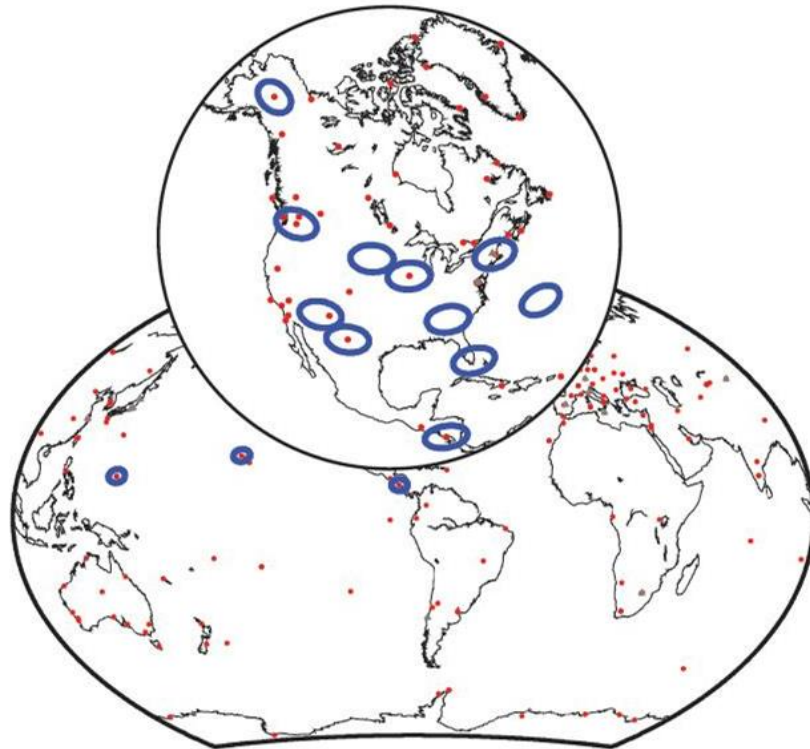
- **15%** of published positions are out of tolerance ($2\text{ cm} \Leftrightarrow$, $4\text{ cm} \Updownarrow$)



AB50
MENDENHALL
Juneau, AK

Foundation CORS

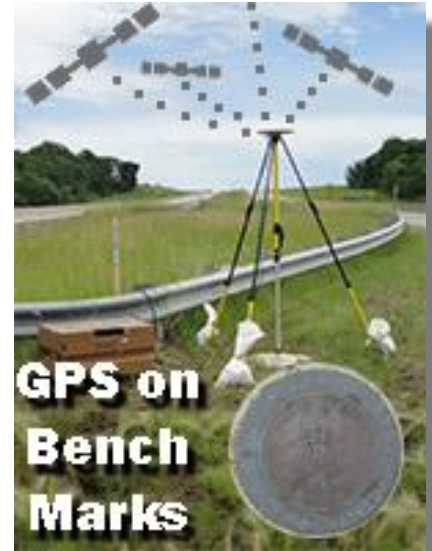
- A highly stable GNSS site operated by NGS.
- 1 foundational CORS is planned for Alaska by 2022.



Future of Geodetic Control in Alaska

Passive Control:

Requires **GPS on Marks** to ensure good transformation tools for legacy datasets



Active Control:

Identify strategies to preserve, densify, and enhance the **CORS Network** in Alaska

Educate the public about geospatial infrastructure

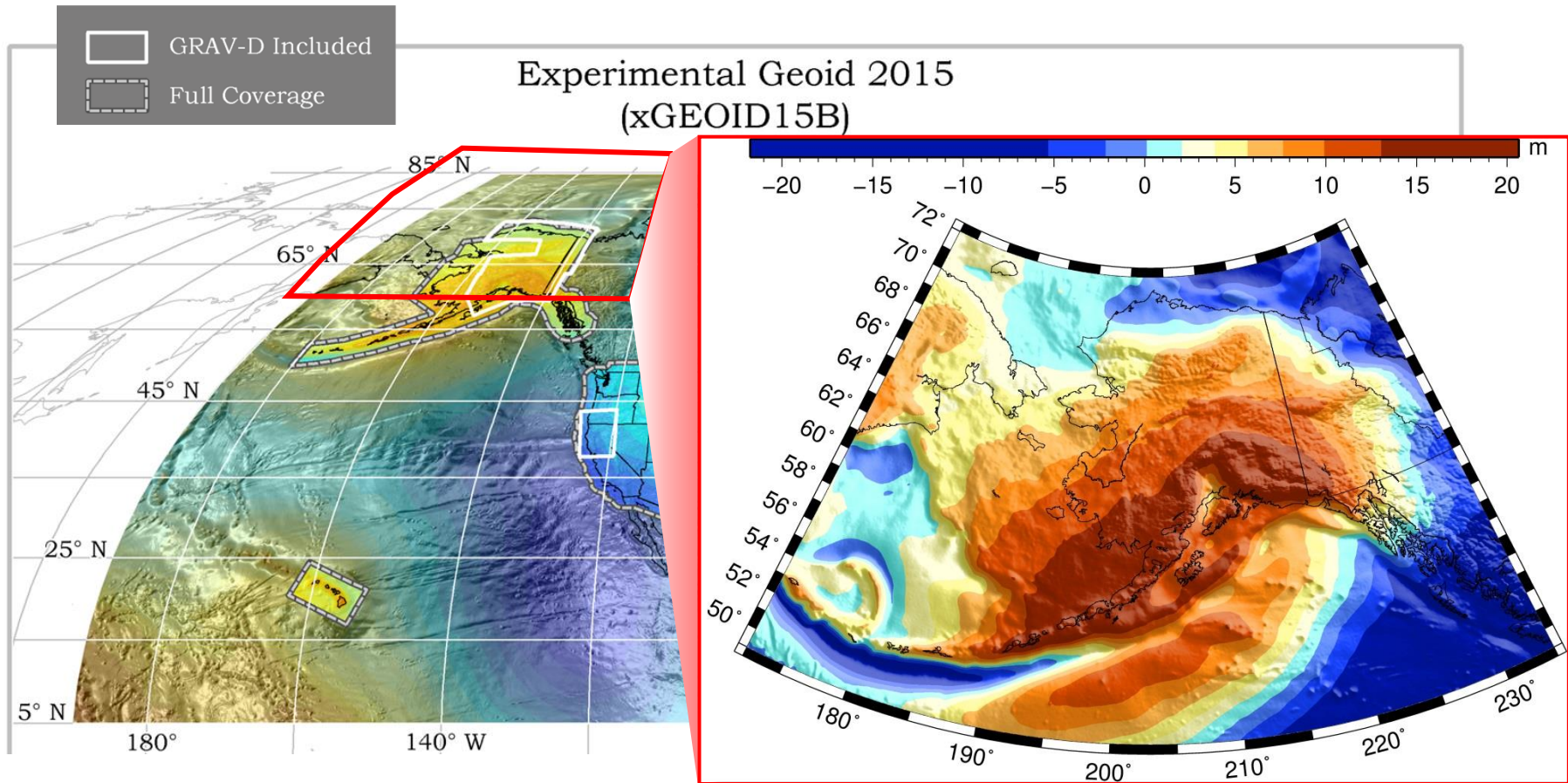
Data Acquisition Accomplishments Section

Data Acquisition Accomplishments

Theme	Metric	Spring 2016 Status
Elevation (Ifsar)	% IFSAR acquired	69% complete
Hydrography	% NHD updated	15% complete
Transportation	% of State complete and publicly available	Baseline road coverage 100% complete and delivered to the public by AK DOT; enhancements ongoing
GRAV-D	% GRAV-D acquired	55% complete
Coastal Mapping	% AK shoreline updated	43% complete

GRAV-D Refresher

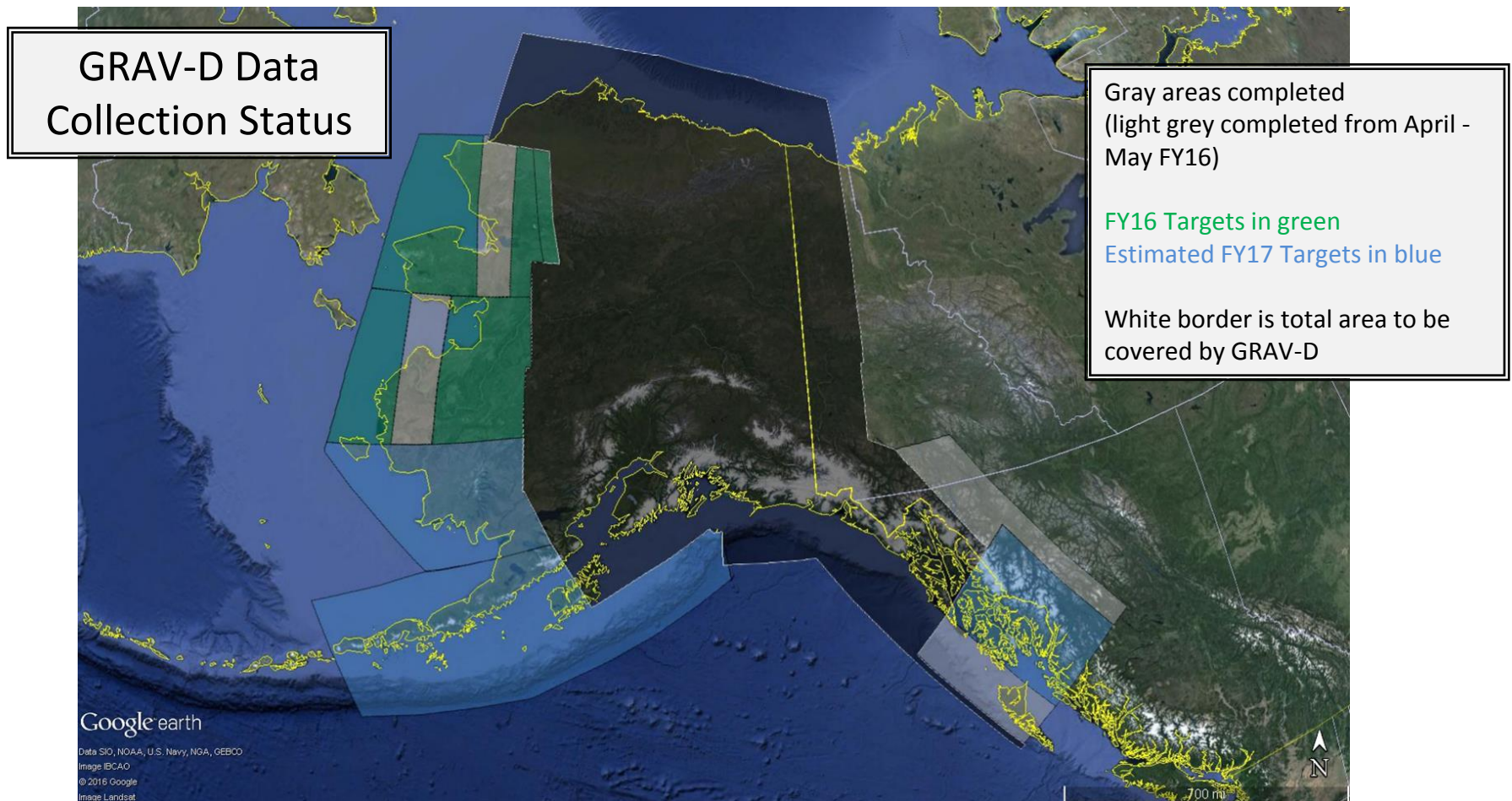
- GRAV-D project goal is a refined gravimetric geoid model that enables GPS-derived elevations accurate to 2 cm in the NSRS update of 2022



- Upcoming xGeoid16 model incorporates GRAV-D data for 50% of AK

NOAA GRAV-D Update

- GRAV-D will be collecting airborne gravity data in southeast and western AK in FY16

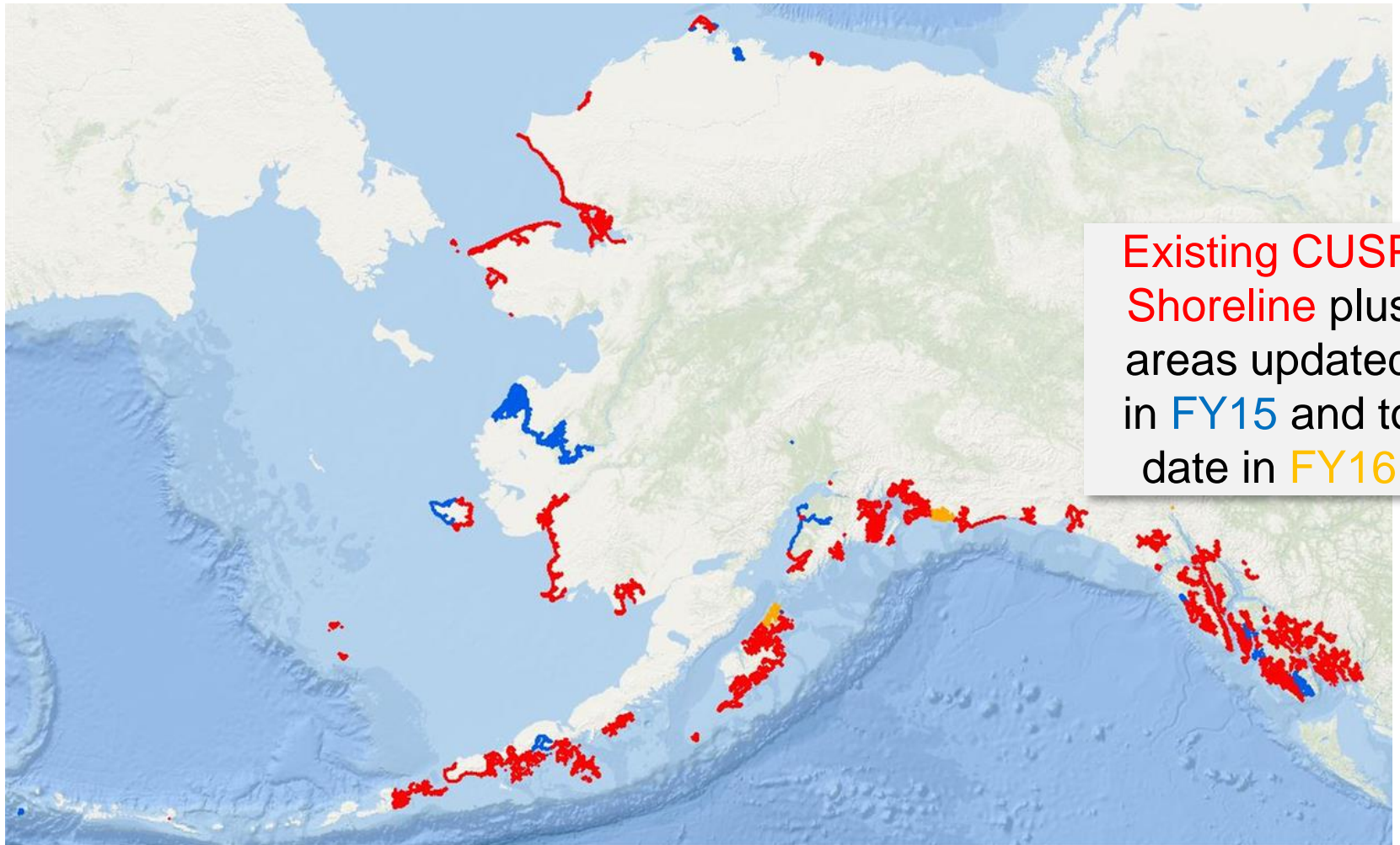


NOAA GRAV-D UAS Testing

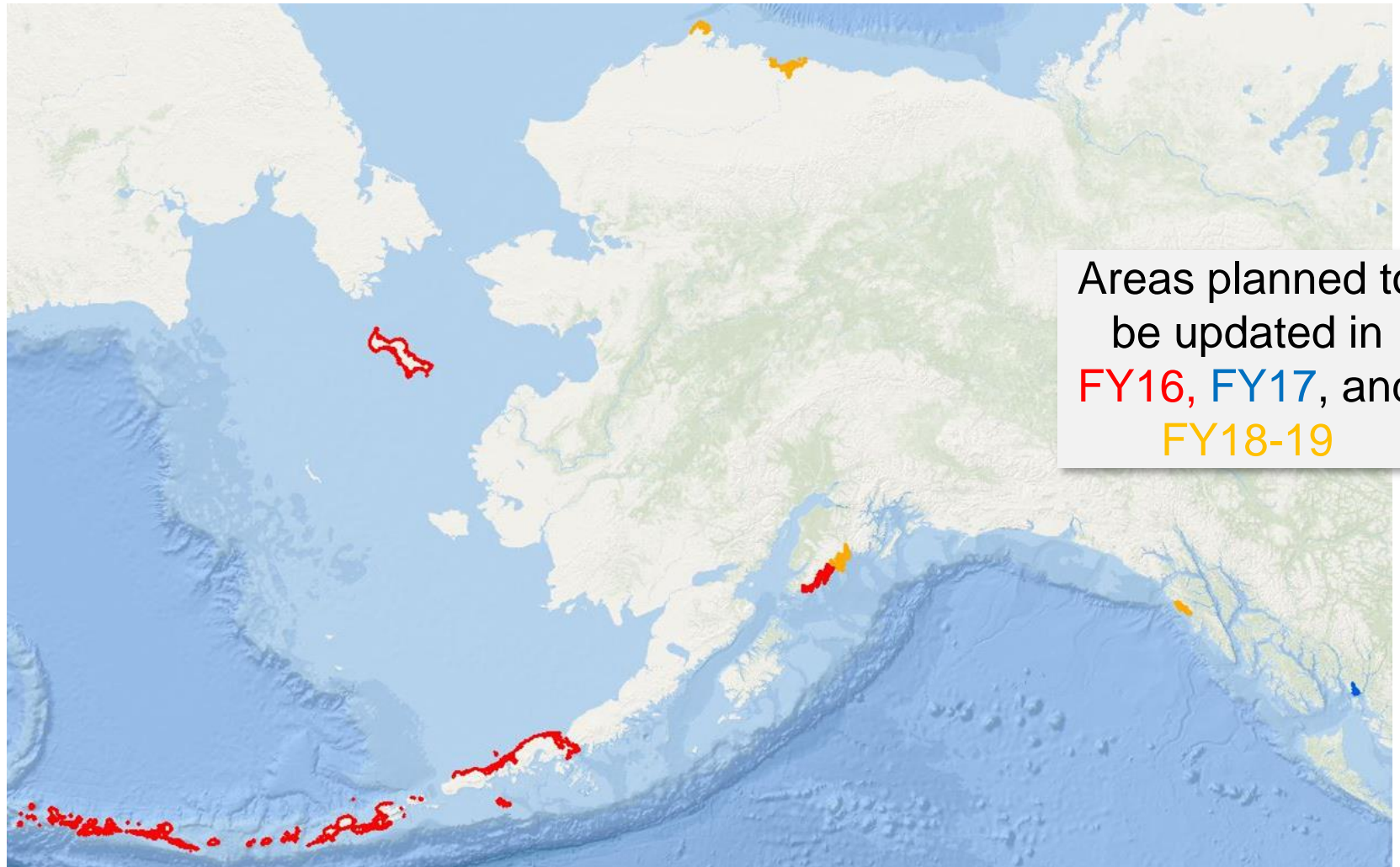


Aurora Flight Sciences
Centaur Optionally Piloted Aircraft
Test Flight April 14th

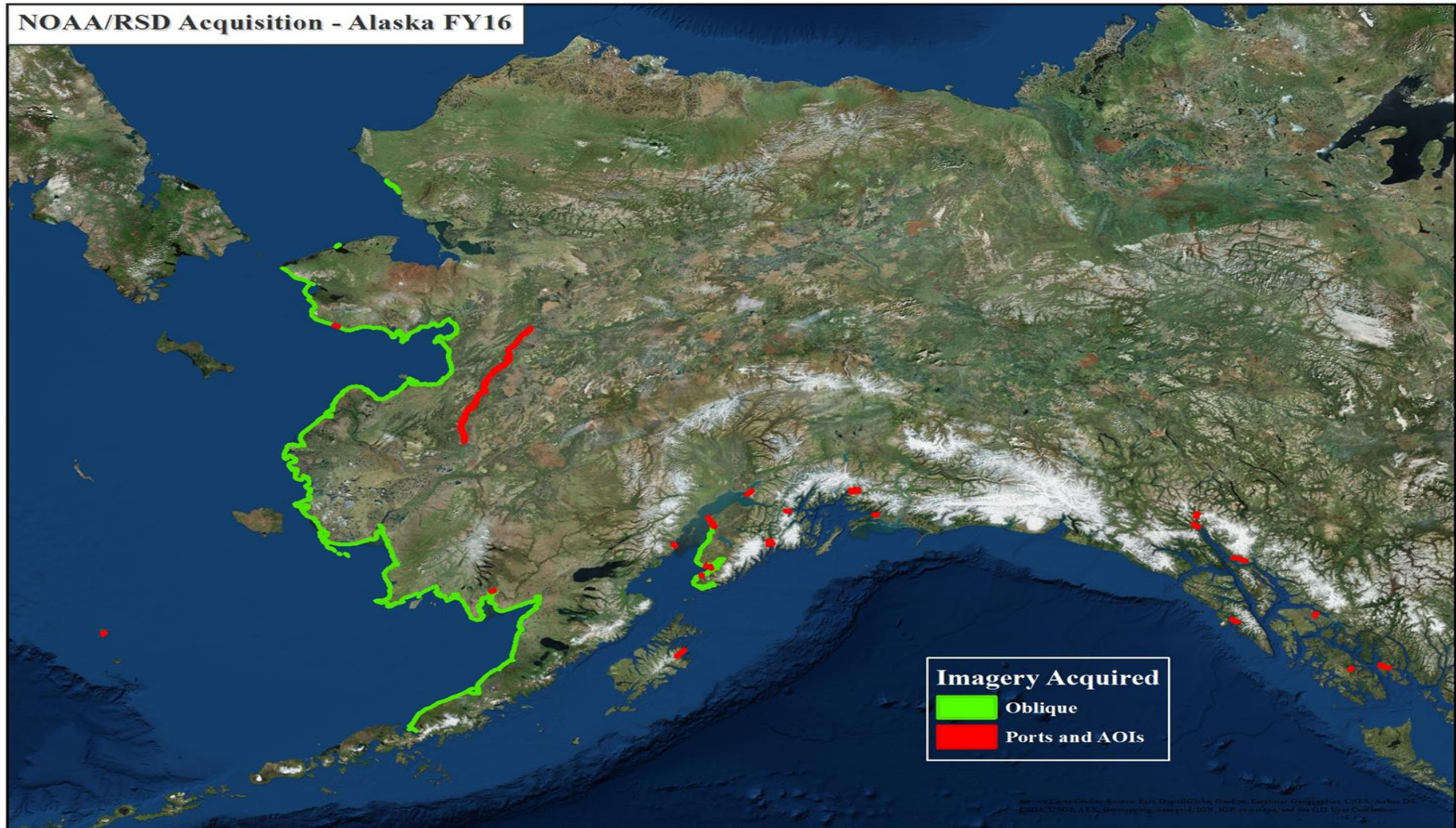
Current Status of NOAA Shoreline



NOAA Planned Shoreline Updates



Alaska Oblique Aerial Imagery – Spring 2016



Oblique Aerial Imagery Example



SeaSketch Coordination

The screenshot displays the SeaSketch web application interface. At the top, the NOAA logo is on the left, followed by the text "U.S. Federal Mapping Coordination" and "A Demonstration Site for Federal Mapping Data Acquisition Coordination". The "seasketch" logo is in the center, and "English", "take a tour", "help", and "Sign In" links are on the right. Below the header, a map of Alaska is shown with various data layers overlaid. On the left side of the map, there are zoom controls (+, -, and a full-screen icon). On the right side, there is a "Data Layers" panel with tabs for "Data Layers", "My Plans", and "Participate". Under the "Data Layers" tab, there is a search bar and a list of data layers. The list is titled "Alaska/Arctic Priorities, Proposed, Planned, Ongoing" and includes several categories with checkboxes and icons.

U.S. Federal Mapping Coordination
A Demonstration Site for Federal Mapping Data Acquisition Coordination

seasketch

English take a tour ? help Sign In

Data Layers My Plans Participate

Data Layers Basemap Legend & Ordering

Search layers by name or keyword

Alaska/Arctic Priorities, Proposed, Planned, Ongoing

- ✓ Alaska/Arctic
 - Alaska/Arctic Priorities
 - ✓ Alaska/Arctic Plans
 - ✓ Dutch_Harbor_CSCAP Plans_AOI_AK1407
 - ✓ RSD 2016 Alaska Aerial Plans
 - ✓ NPS Cook Inlet AK FY17 Plans
 - ✓ NOAA 2015 Hydro Surveys Arctic (OCS)
 - ✓ FEMA 2015 Alaska Lidar Plans
 - ✓ AK Department of Natural Resources DGGS
 - Alaska IFSAR - Update April 2016
 - ✓ USGS NTHMP
 - ✓ USGS AK 2016 AOIs
 - Existing Alaska/Arctic
 - Approx extents AK 2004-05 and USGS 2013 Lidar
 - ShoreZoneFlexMapService

- All highlighted areas are planned collections in FY2016-17

Alaska Coastal Mapping Summit



June 14, 2016
Girdwood Alaska

- 4 hour inaugural coordination meeting
- Over 75 attendees from over 50 stakeholder entities

2016 Alaska Coastal Mapping Summit





Alaska Department of Transportation & Public Facilities

Keep Alaska Moving through service and infrastructure

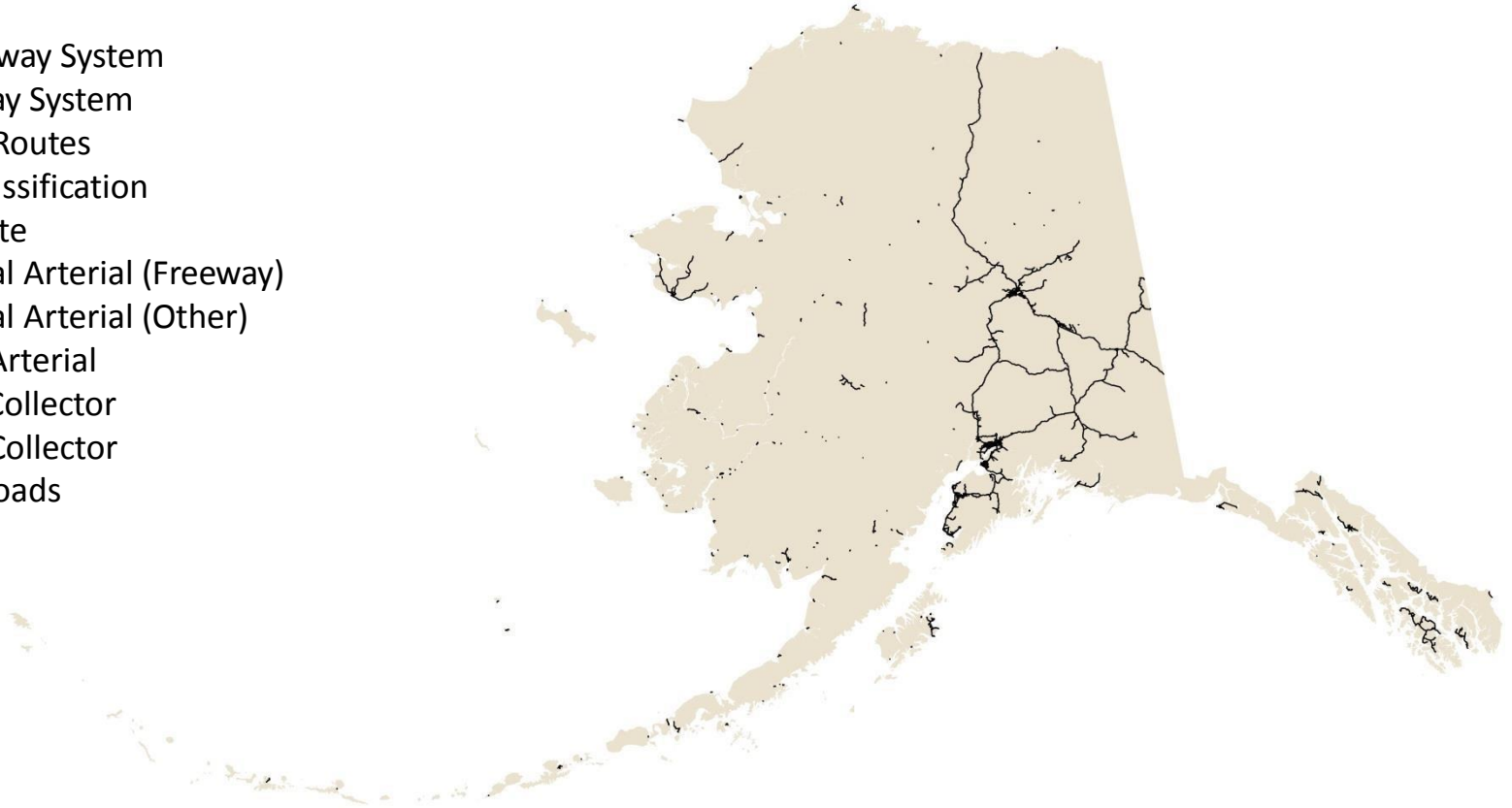
Alaska DOT Road Data

- Primary Network
 - State owned highways
 - Collected primarily with GPS or lidar
- Secondary Network
 - Local public roads
 - State acquired and integrated multiple local road datasets
 - Enhanced the local data using various revision techniques
 - Trails, Seasonal, and ATV routes are NOT included

Primary Network

2,876 Routes

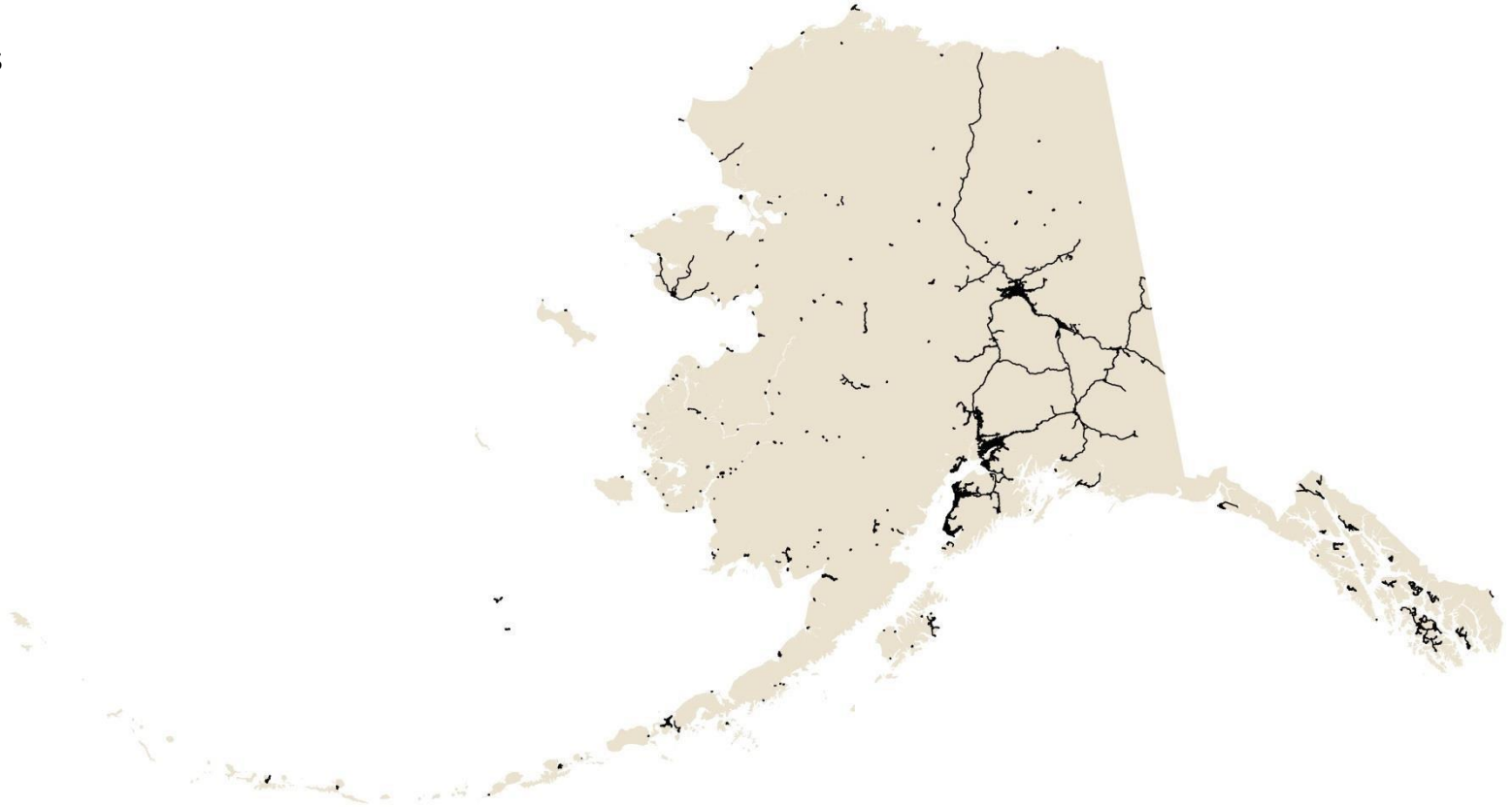
- ✓ National Highway System
- ✓ Alaska Highway System
- ✓ State Owned Routes
- ✓ Functional Classification
 - Interstate
 - Principal Arterial (Freeway)
 - Principal Arterial (Other)
 - Minor Arterial
 - Major Collector
 - Minor Collector
- ✓ Select Local Roads

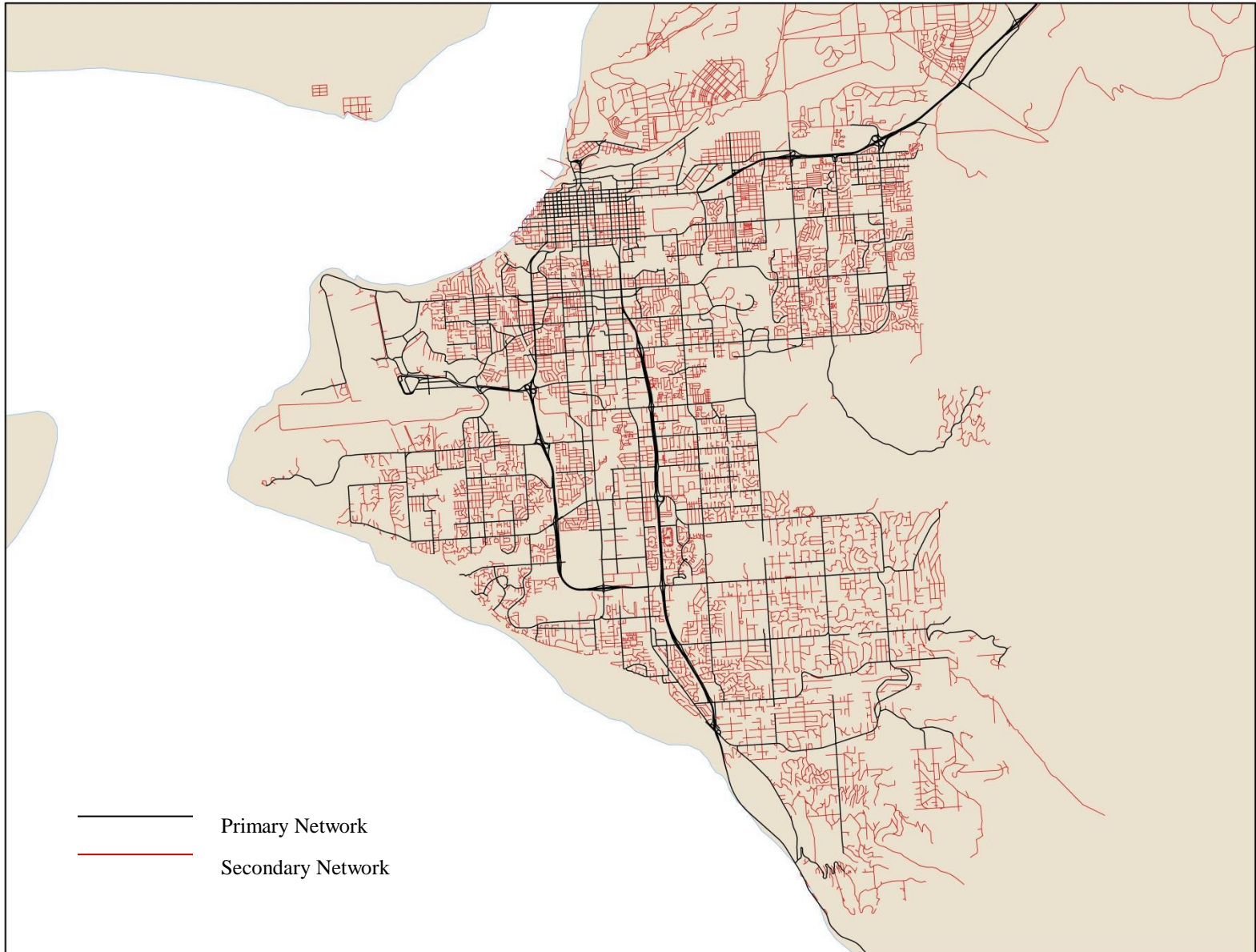


Secondary Network

21,903 Routes

✓ All Local Roads





Near Term and Future Tasks

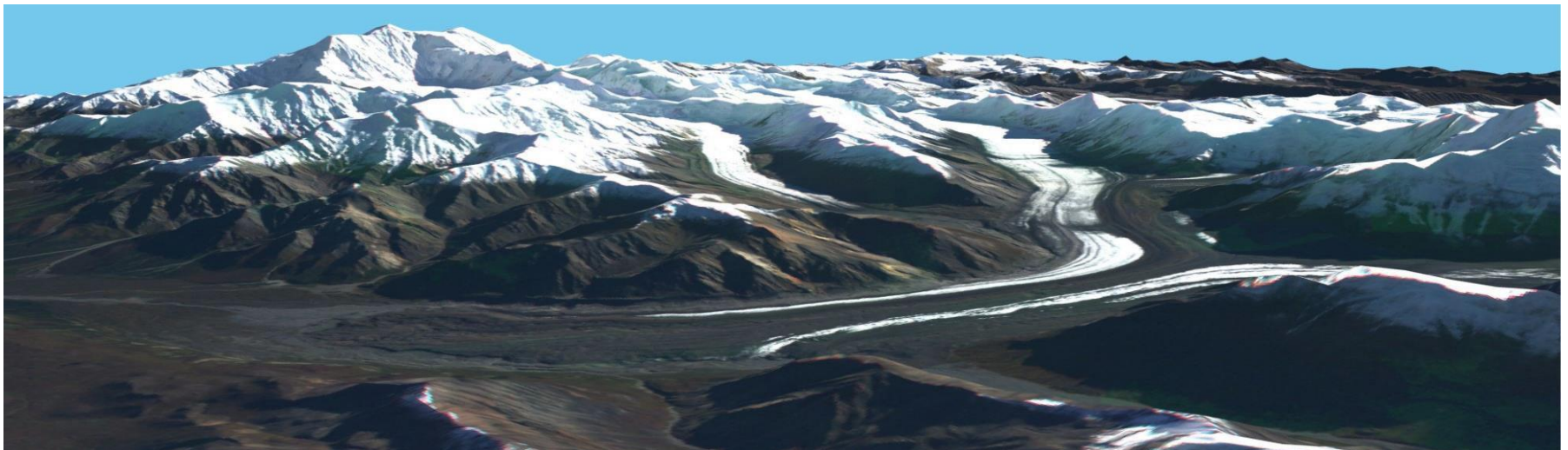
- Complete clean up of the Secondary Network
- Release updated Alaska Road Network summer 2016
- Transition the current Primary and Secondary Road Network Dataset to a new enterprise GIS infrastructure
- Collaborate with federal agencies to include and improve road data over federal lands
- Collaborate with local agencies to develop a long-term data Maintenance strategy

+ Communications - Discussion

- Materials Available: Alaska Mapping USGS Fact Sheet, AMEC Webpage with critical documents attached, Congressional briefing paper, Budget Cross Cut, base PowerPoint slide decks
- Materials In-Work: USGS Circular – 40 page document exploring the history of Alaska Mapping and describing the modern Alaska Mapping Initiative
- Other Materials? Any Interest in supporting?
 - Who are the primary target audiences?
 - What tools are needed to effectively present the Alaska Mapping success story and continued mapping requirements?
 - Possible Examples: Video, Use Case Brochure, ESRI StoryMap, Publication-ready Tactical Plan

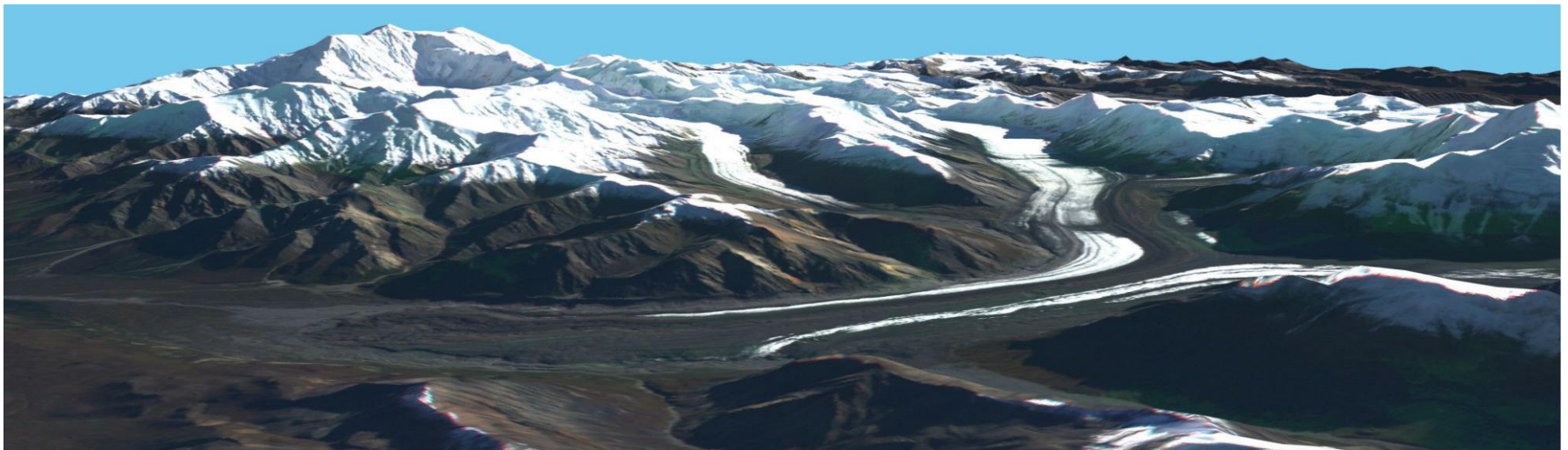
+ Open Strategy Discussion

- Open format, roundtable discussion



+ Action Items and Next Steps

- Consider October meeting with AMEC co-chairs to discuss AMEC continuity plan across administrations
- Schedule next meeting – proposed date Wednesday, March 15, 2017
- Other



+ Adjourn

- Closing comments
- Adjourn until next meeting

